Sustainable Drainage on the Highway

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- Introduction to SuDS and ASA
- SuDS in planning and highways; back to the future
- Requirements, benefits and guidance
- Retrofitting to remove highways drainage issues
- Installation and maintenance
- Highway runoff pollution mapping tool example
- Future legislation changes on the horizon

About ASA: Association of SuDS Authorities

Member run organisation of Lead Local Flood Authority Officers (County and Unitary Councils) working on sustainable drainage systems (SuDS) – particularly within planning consultee role;

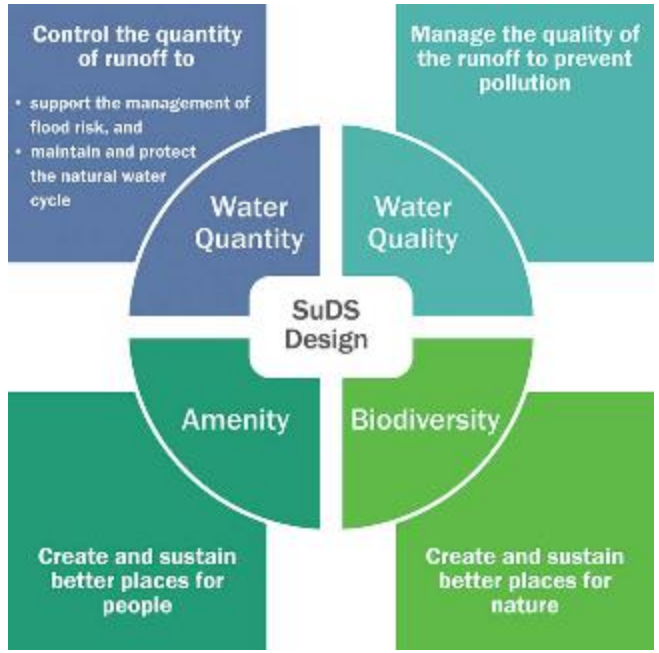
- To support members and partner organisations in delivery of SuDS and SuDS approval through planning and development
- To share and promote good practice to enhance the effectiveness and deliverability of sustainable drainage.
- Develop guidance for the National Standards for Sustainable Drainage Systems and other related topics
- To engage with Government in developing policy and regulation for surface water management.

Affiliated to ADA (Association of Drainage Authorities)

Promoting Sustainable Drainage

Sustainable drainage systems

- Mimic natural drainage processes
- Multifunctional (4 pillars)
- Manage flow close to source
- Managing water on the surface



+ Reduce flow rates
+ Treat water quality
+ Encourage biodiversity
+ Greener amenity value

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SuDS can be this:

Constructed wetlands and attenuation basins

Green roofs and walls

Vegetated swales with flow controls

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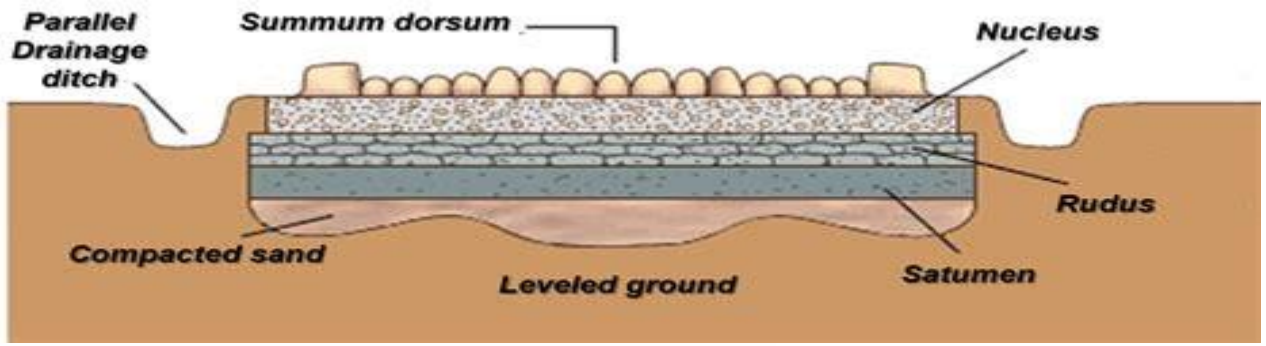
But also:

Highway ditch

Filter drains

Roadside Pond

Permeable Paving



Drainage ditch beside Roman Road, Pakenham

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Planning Requirements:

Planning policy requirement for multifunctional SuDS on all:

- Major development
- Development in flood risk areas

Unless there is clear evidence demonstrating they would be inappropriate (very rare!)

LLFA (County or Unitary Authorities) are only statutory consultee on major applications

Drainage must ensure:

- No unmanaged flooding in a 1 in 30 year (3.33% chance) storm
- No flooding off site in a 1 in 100 year (1% chance) storm
- Allowances for climate change (between 40 and 55%) and for urban creep (~10%)
- No increase in on or off site risk as a result of the development

Highway Requirements:

DMRB criteria

CG 501 Design of highway drainage systems

- 1 in 1 year storm– no surcharge of the drainage system; and,
- 1 in 5 year storm – no flooding from the drainage system.
- Highway surface water flooding does not extend beyond the highway boundary up to the 1-in-100 year rainfall event, including an allowance for climate change.

CD 522 Drainage of runoff from natural catchments

Manual for Streets 1 & 2 & Update (MfS)

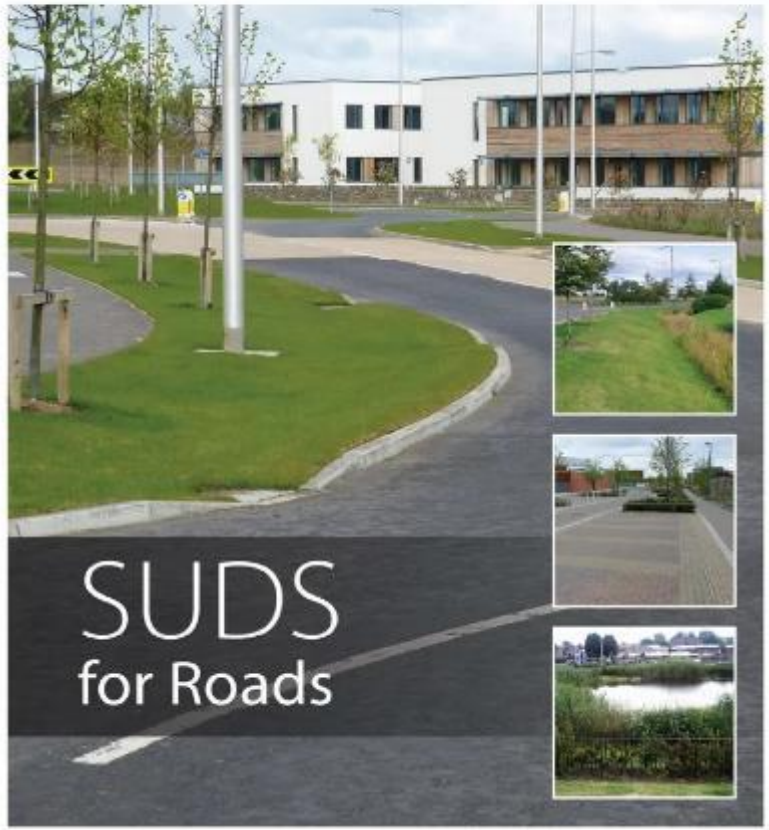
Local Highway Authority Guidance

Promoting Sustainable Drainage

Highway SuDs Guidance:

SuDS for Roads (Scotland)
http://scotsnet.org.uk/documents/SudsforRoads.pdf

CIRIA SuDS Manual
https://www.susdrain.org/resources/SuDS_Manual.html



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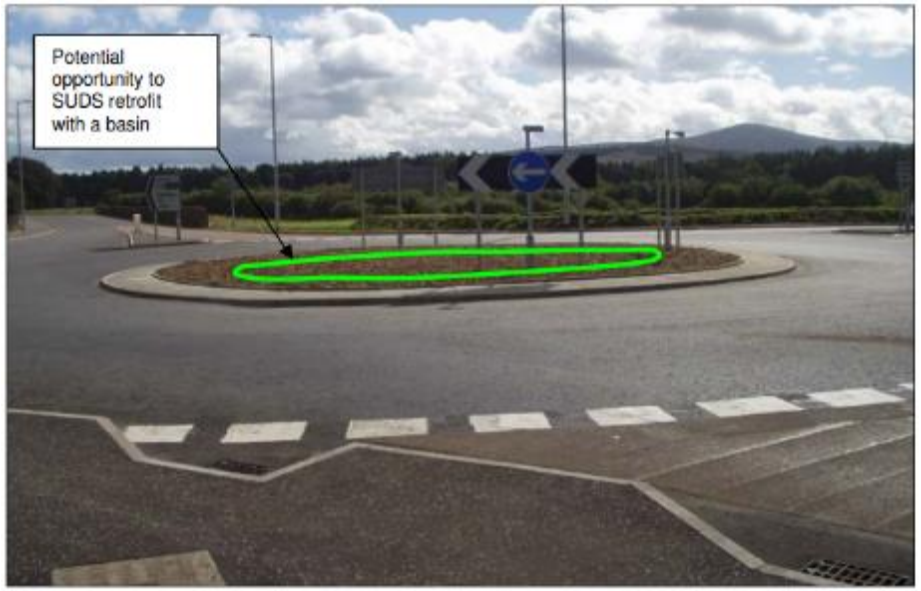
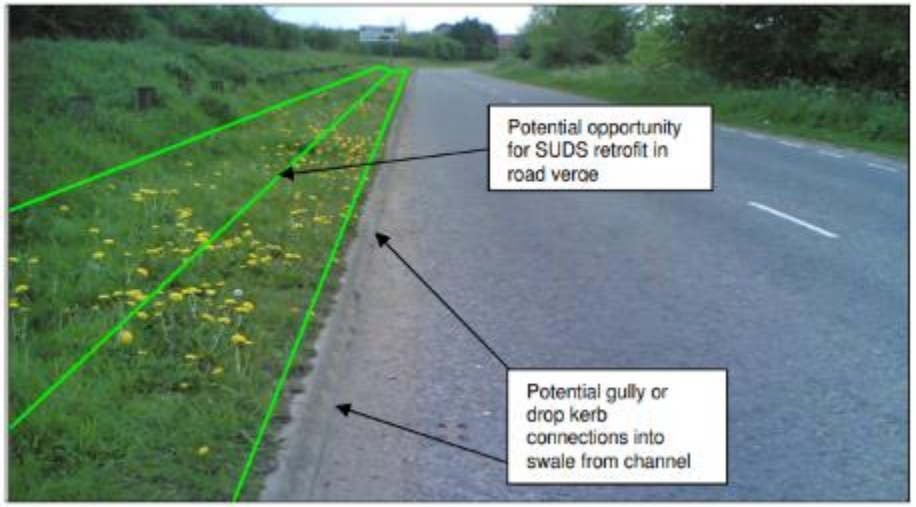
Addressing existing issues





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Addressing existing issues

Retrofitting SuDS in existing locations:

- Policy approach: opportunities vs planned replacement – aging systems
- Maintenance or replacement of existing drainage, if any
- Consideration of previous design standards, scale of impact and impacts of climate change
- Utilities
- Standard drawings and solutions
- Available space, location and connections
- Future maintenance?

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Installation and maintenance

- SuDS can be a low-tech, low capital and revenue cost option
- Adaptable and compatible with existing drainage technology
- Input from wider design team: ecologists, landscape designers, water quality specialist, local inspectors
- Requires good, knowledgeable supervision and adaptable designs

- Maintenance must be considered from the start
- Ease of access and meeting standard contract approaches are key
- Making local agreements with other partners can help with wider benefits – e.g. vegetation management
- Step change may be required to achieve SuDS network-wide at scale

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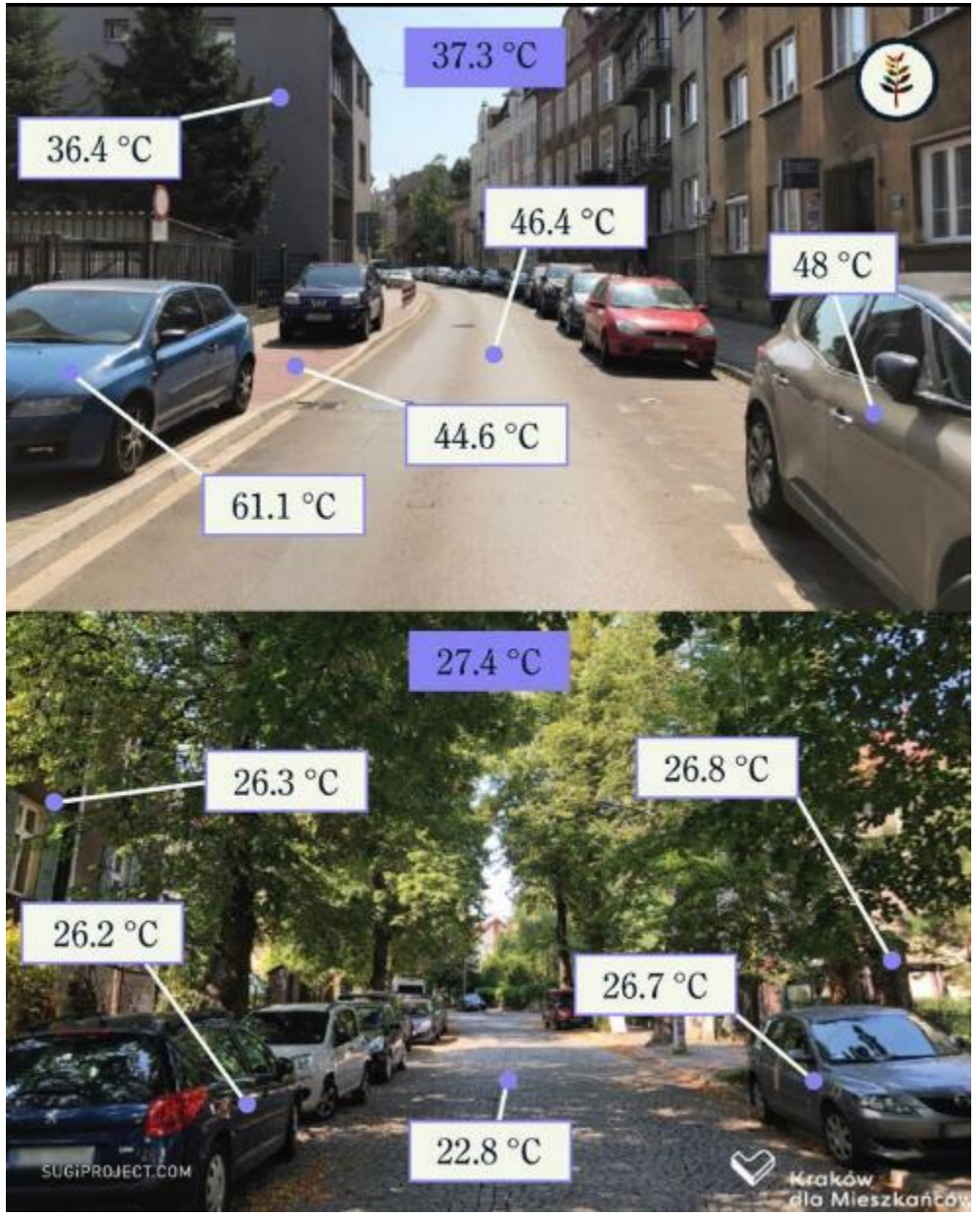
SuDS: not just flooding…



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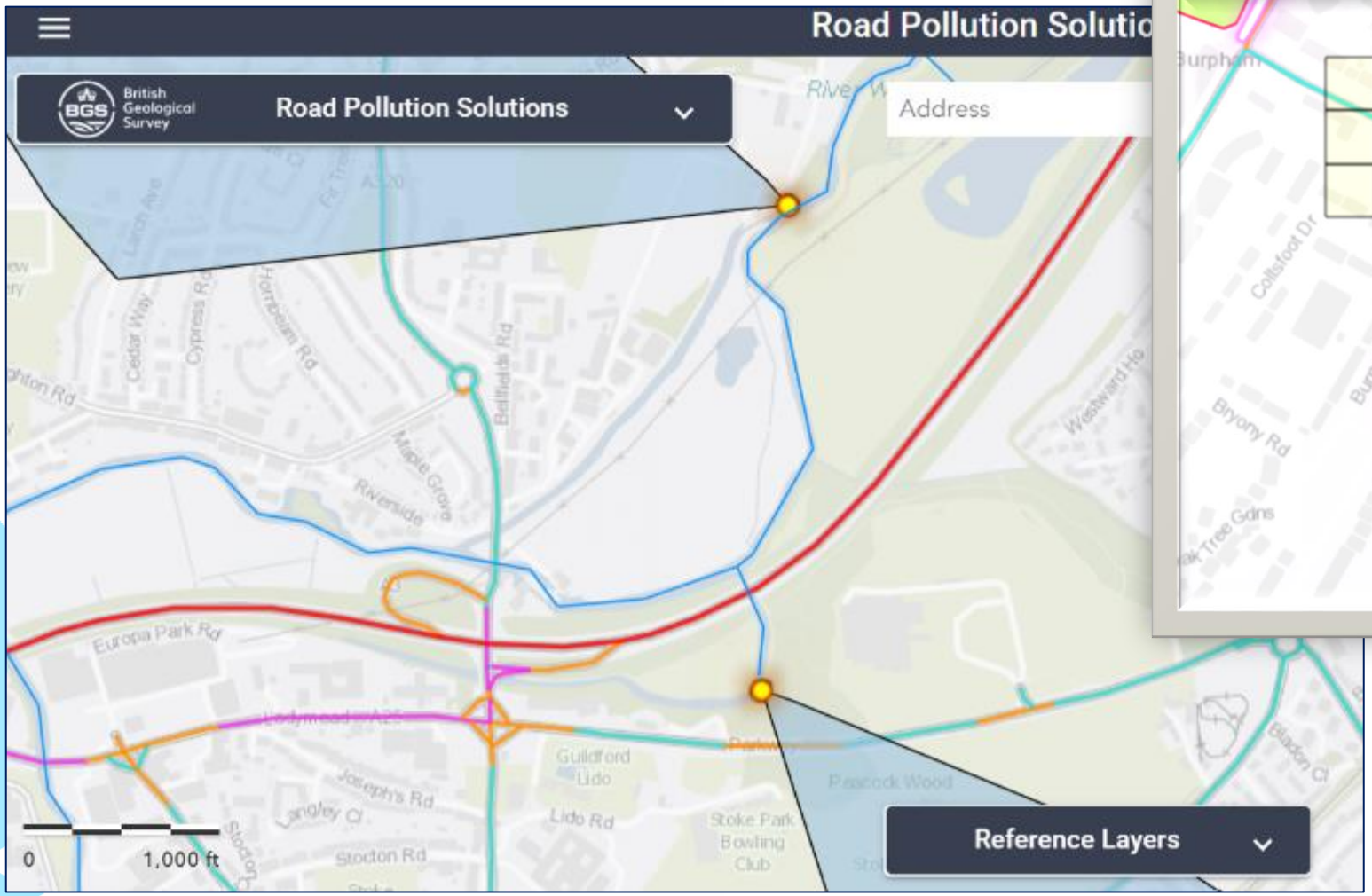
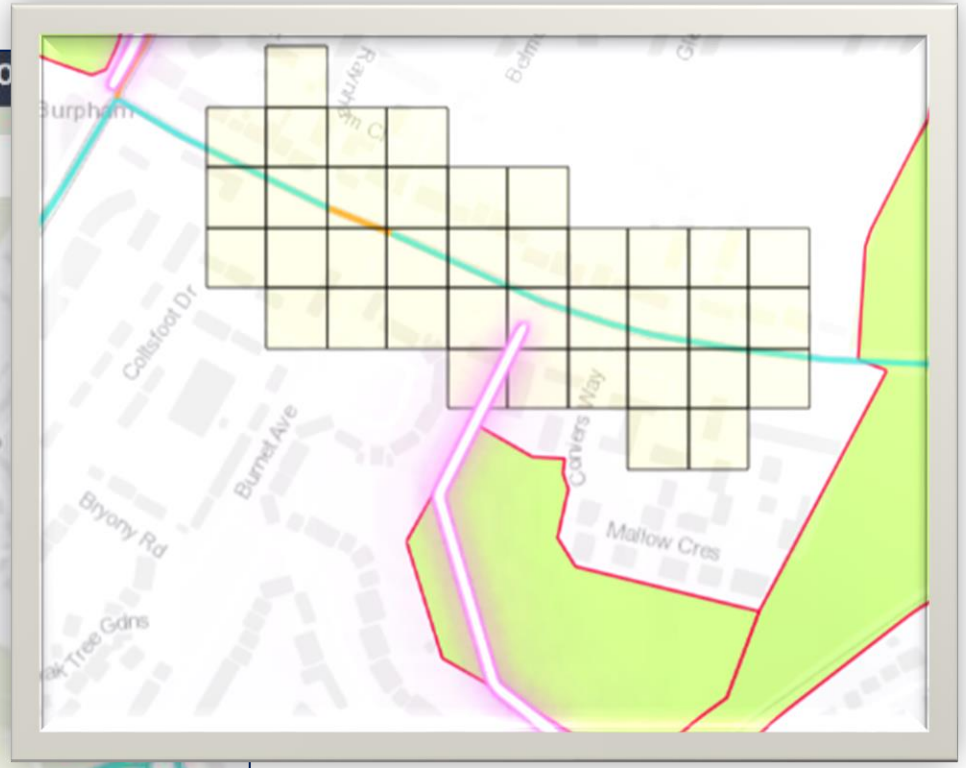
https://mapapps.bgs.ac.uk/road-pollution-solutions/

Thames 21 Road Pollution Mapping & SuDS





THAMES21

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SuDS Approval Body; Summary, impacts and benefits

SAB ROLE for Unitary and County Authorities

2024 Consultation on Sch. 3 of the Flood and Water Management Act

Approval of "Construction work with drainage implications"

- Includes Highways works

Adoption and **Maintain** SuDS - if approved;

- where the SuDS serve two or more properties and the drainage system has been constructed as approved, the SAB has a duty to adopt those systems (s17)
- The SAB does not have to adopt a drainage system which is part of a publicly-maintained road – but many SABs will sit alongside LHA
- The SAB can voluntarily adopt any drainage system

Guidance - responsible for producing design guidance documents and approval/adoption procedures

A Greener Future

Source: www.thames21.org.uk