

## Draft update of the Non-statutory technical standards for sustainable drainage systems

### Introduction

The Department for Environment, Food and Rural Affairs (Defra) has commissioned research to explore whether the English Non-statutory technical standards for sustainable drainage systems (SuDS) (“the NSTS”) could be updated to help deliver SuDS that provide multiple benefits. This will contribute to improving water quality and providing better places and spaces that have health and wellbeing benefits.

This research is being undertaken by a team led by HR Wallingford that includes CIRIA, McCloy Consulting, Illman Young and others. A key element of the research is to engage with stakeholders that approve, design and commission SuDS for new developments in England to understand whether proposed new wording for the standards and associated clarification statements will help deliver multiple benefits within the current planning and regulatory regime.

We welcome your feedback on the proposed updated standards via this survey. The survey describes the objectives and desired outcomes for each standard, the proposed wording for each standard and the relevant clarification statements that will accompany the standards. Your feedback will be used in the research project to inform recommended updates to the NSTS.

The survey should take around 25 minutes to complete. A PDF of the survey that contains the standards can be [downloaded from here](#) (we can only accept online responses).

Many thanks.

The Project Team

#### Notice:

*Completing this survey is voluntary, responses will be anonymised and no personal data relating to any individual will be collected or stored. The findings from the survey is for research purposes only and will provide useful feedback for the project to provide recommendations on updating the Non-statutory technical standards for SuDS. Information collected will be stored in accordance with [CIRIA's Privacy Policy](#). For further information and queries related to the survey contact Paul Shaffer at [paul.shaffer@ciria.org](mailto:paul.shaffer@ciria.org).*

## Draft update of the Non-statutory technical standards for sustainable drainage systems

### About you

\* 1. Do you agree to participate in the survey? The data collected will be used to inform the review of the Non-statutory technical standards for SuDS (NSTS)

Yes

No

## Draft update of the Non-statutory technical standards for sustainable drainage systems

### About you

\* 2. Are you responding as an individual or on behalf of an organisation?

- Individual
- Organisation (please specify)

If you answered 'organisation', please let us know which organisation you're responding on behalf of.

\* 3. What is your role in the delivery of SuDS?

- Approval (i.e. I approve and/or provide advice for planning applications)
- Practitioner/designer (i.e. I'm involved in the design of SuDS)
- Developer/client (i.e. I commission other people to design SuDS)
- Other (i.e. I am none of the above)

## Draft update of the Non-statutory technical standards for sustainable drainage systems

### About you - Approver

\* 4. What role do you have within the approval process for SuDS? Please select from the drop-down menu.

Specify here (max 100 characters)

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About you - Practitioner/designer

\* 5. What role do you have as a SuDS practitioner/designer? Please select from the drop-down menu.

Specify here (max 100 characters)

## Draft update of the Non-statutory technical standards for sustainable drainage systems

### About you - Developer/client

\* 6. What role do you have within a developer/client organisation? Please select from the drop-down menu.

Specify here (max 100 characters)

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About you - Other

\* 7. What role do you have in SuDS?

Specify here (max 100 characters)

## Draft update of the Non-statutory technical standards for sustainable drainage systems

### Feedback on the updated draft standards

**The aim of this research is to report whether updating the current Non-Statutory Technical Standards (NSTS) for sustainable drainage systems (SuDS) published in 2015 could help deliver SuDS that provide multiple benefits.**

**We have developed draft standards and accompanying clarification statements following a review of evidence and stakeholder engagement.**

**The draft standards make reference to 'a SuDS approach'. We are proposing that the definition of that approach is provided with the standards and should be as follows:**

#### **Definition of 'a SuDS approach'**

A SuDS approach mimics natural drainage systems in delivering effective surface water management alongside environmental and social benefits. The approach uses SuDS components in combination that harvest, absorb, infiltrate, convey, store, treat and control runoff – integrating these through the development and its landscape to help create high quality, resilient amenity spaces and habitats for wildlife.

SuDS components can take many forms, both above and below ground. In general, SuDS that are designed to be multi-functional, manage and use rainwater close to where it falls, and are on the surface and incorporate vegetation, tend to provide the most opportunities for multiple benefits.

\* 8. How clear is this definition? Please select one.

- Clear
- Not clear
- Don't know

9. If you answered 'not clear' or 'don't know', please provide details of the clarification needed. (Max 500 characters)



## Standard 1 – Prioritising runoff destination

With reference to the objectives and desired outcomes for each standard, please provide your feedback on each proposed standard and accompanying clarification statements.

### **Objectives and desired outcomes**

The objectives and desired outcomes for Standard 1 are the following:

- Rainwater harvesting is robustly considered wherever it would provide a valuable contribution to water security (i.e. where development occurs in water stressed areas) and a safe, cost-effective water supply option.
- Opportunities to infiltrate runoff into the ground from impervious surfaces are maximised wherever appropriate, in order to recharge soil moisture, river baseflows and groundwater and to reduce volumes of runoff discharge to receiving waterbodies or sewers.
- Discharges to (closed) sewers or other piped drainage systems are considered only after infiltration and discharges to open surface water bodies, in order to minimise future headroom (capacity) risks and enhance systems resilience.
- Discharges to combined sewers are considered as a last resort due to the risks of sewer surcharge and combined sewer overflows resulting from surface water runoff contributions (particularly under future climate scenarios).

## **STANDARD 1: DESTINATION OF RUNOFF**

Apply 'a SuDS approach' that uses the following process for determining runoff destinations:

- a) Clearly consider and, where possible, use surface water runoff as a resource for non-potable uses
- b) Clearly consider and, where appropriate, maximise opportunities across the site to infiltrate runoff into the ground
- c) Discharge runoff, if it has not been used or infiltrated into the ground, to a watercourse or other open surface water body
- d) Where (c) is not possible, discharge runoff, if it has not been used or infiltrated into the ground, to an underground (i.e. closed) surface water sewer, highway drain or other surface water drainage system
- e) Where (d) is not possible, discharge runoff, if it has not been used or infiltrated into the ground, to a combined sewer.

### Clarification statements

1. Clear evidence should be provided that 'a SuDS approach' to surface water management has been developed from the earliest stages of planning, and fully integrated throughout the development and its landscape design.
2. Depending on the site characteristics, drainage from different parts of the site could have different drainage destinations.
3. It should be demonstrated that rainwater harvesting has been clearly considered where:
  - a. There is a high, regular demand for non-potable water that is matched by large available roof areas (e.g. industrial, commercial, horticultural development, where use of harvested rainwater is considered a safe supply option)
  - b. The development includes multi-family occupancy properties
  - c. A need for very low water consumption levels (that can be supported through the use of rainwater harvesting) has been identified by the local authority in conjunction with the water utility provider.
4. The evaluation of infiltration opportunities and risks across the site should include (but not be limited to) assessments of soil permeabilities, ground stability, groundwater and surface water pollution risk, groundwater flooding, and ingress to combined or foul sewers. These risks should be evaluated following the guidance set out in The SuDS Manual (Woods Ballard et al., 2015) and BRE365 (Building Research Establishment, 1991). The SuDS Manual Infiltration Assessment Checklist (or equivalent) should be used to present the appropriate evidence justifying the extent of infiltration adopted in the design.
5. Infiltration components should meet Standard 4 to ensure groundwater quality is protected.
6. Surface water runoff should be infiltrated where appropriate unless an alternative scheme, which is compliant with all other standards and demonstrated to deliver greater benefits (without negatively impacting groundwater recharge needs), is proposed and considered of greater value by the approving body.
7. Where discharge of runoff is proposed to any surface water body or sewer, the drainage design should meet Standard 4 to ensure water quality is protected.
8. Where discharge of runoff is proposed to destinations (d) or (e), clear evidence should be provided explaining why destinations (a), (b) or (c) cannot be used. Discharge to a foul sewer should only be considered in exceptional circumstances and with agreement of the sewerage undertaker.
9. Pumping should be avoided where possible.

\* 10. How clear is this standard and clarification statements? Please select one.

	Clear	Not clear	Don't know
Standard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarification statements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. If you answered 'not clear' or 'don't know' please provide details of any changes to the wording of the standard and/or clarification statements that may be needed. (Max 500 characters)

Standard

Clarification statements

\* 12. Can this standard be delivered? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

13. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to deliver? (Max 500 characters)

Standard

Clarification statements

\* 14. Will it be possible to assess compliance with this standard? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

15. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to assess? (Max 500 characters)

Standard

Clarification statements

16. What additional guidance or tools are needed to deliver and/or assess compliance with this standard?

Please select all that apply.

- None
- Reference to the CIRIA SuDS Manual
- Design proforma
- Design process diagram
- Checklist
- Design tools (please specify)
- Other (please specify)

Specify here (max 100 characters)

17. Are there any other aspects related to the delivery and/or assessment of this standard that we should consider? (Max 500 characters)

Standard 2 – Managing runoff from everyday rainfall

**Objectives and desired outcomes**

The objectives and desired outcomes for Standard 2 are the following:

- Increased coverage of pervious surfacing and green infrastructure (that will contribute to amenity and biodiversity objectives) and rainwater harvesting (where appropriate and of value)
- Replication of natural catchment response to regular rainfall
- Protection of the morphology of receiving waterbodies (that are damaged by unnatural, regular, high velocity runoff from conventional drainage systems)
- Protection of the quality of receiving waterbodies (by preventing the discharge of polluted runoff from regular rainfall events)
- Reducing impacts of development on sewers (by protecting headroom for regular events, and limiting contributions to sewers during rainfall events that could cause sewer overflows).

**STANDARD 2: RUNOFF FROM EVERYDAY RAINFALL**

Apply 'a SuDS approach' so that the majority of frequent rainfall events do not cause runoff from the site to waterbodies or sewers.

### Clarification statements

1. Clear evidence should be provided that 'a SuDS approach' to surface water management has been developed from the earliest stages of planning, and fully integrated throughout the development and its landscape design.
2. Frequent rainfall events are defined here as events up to at least 5mm in depth.
3. Clear evidence should be provided that the runoff from all impermeable surfaces for at least 5mm of rainfall is collected for use, infiltrated, or captured, conveyed and/or stored within components that will naturally absorb or retain runoff and from which the runoff will be 'lost' to soils or the atmosphere. These components should be located as close to the source of the runoff as possible. Compliance with this Standard should be demonstrated using industry best practice guidance as defined in The SuDS Manual (Woods Ballard et al., 2015) or using methods/tools accepted by the approving body.
4. Application of the standard is required for the 'majority' of these frequent events, recognising that that there will be times, following periods of wet weather, when runoff from frequent events may still occur.
5. Clear evidence should be provided that the approach to managing runoff from everyday rainfall has been developed alongside and in support of the management of runoff quality (Standard 4) and the delivery of amenity and biodiversity benefits (Standards 5 and 6).

\* 18. How clear is this standard and clarification statements? Please select one.

	Clear	Not clear	Don't know
Standard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarification statements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. If you answered 'not clear' or 'don't know' please provide details of any changes to the wording of the standard and/or clarification statements that may be needed. (Max 500 characters)

Standard

Clarification statements

\* 20. Can this standard be delivered? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

21. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to deliver? (Max 500 characters)

Standard

Clarification statements

\* 22. Will it be possible to assess compliance with this standard? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

23. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to assess? (Max 500 characters)

Standard

Clarification statements

24. What additional guidance or tools are needed to deliver and/or assess compliance with this standard? Please select all that apply.

- None
- Reference to the CIRIA SuDS Manual
- Design proforma
- Design process diagram
- Checklist
- Design tools (please specify)
- Other (please specify)

Specify here (max 100 characters)

25. Are there any other aspects related to the delivery and/or assessment of this standard that we should consider? (Max 500 characters)



Standard 3 – Managing runoff from extreme rainfall

**Objectives and desired outcomes**

The objectives and desired outcomes for Standard 3 are the following:

- It is clear and easily understood by designers and approvers
- It will be consistently interpreted and applied
- It will deliver effective mitigation of the impact of development on receiving watercourse flood risk
- It will deliver improved protection of the capacity of receiving sewers.

### STANDARD 3: RUNOFF FROM EXTREME RAINFALL

Apply 'a SuDS approach' that manages the rates and volumes of runoff that are discharged from the site to a receiving waterbody or sewer so that:

**Either:**

- a) The peak allowable discharge rate from the site for all rainfall events up to the 1 in 100 year return period including appropriate allowances for climate change and urban creep is limited to:
- For greenfield sites: the  $Q_{bar}^*$  (or  $Q_{med}^{**}$ ) greenfield runoff rate or a fixed rate which is considered not to exacerbate flood risk in the receiving waterbody (whichever is the greater); or
  - For previously developed sites: the  $Q_{bar}$  (or  $Q_{med}$ ) greenfield runoff rate or an agreed relaxation of this rate or a fixed rate which is considered not to exacerbate flood risk in the receiving waterbody (whichever is the greater); or
  - An alternative rate specified by the local authority (in conjunction with the sewerage undertaker for discharges to sewers).

**Or:**

- b) Where it can be demonstrated that the volume of runoff from the development site is no greater than the volume of greenfield runoff (for the 1 in 100 year, 6 hour event), then the peak allowable discharge rate from the site (including appropriate allowances for climate change and urban creep) is limited to:
- For rainfall up to the  $Q_{bar}$  (or  $Q_{med}$ ) event: the rate as defined in (a) above;
  - For larger rainfall events up to the 1 in 100 year return period: the 1 in 100 year greenfield rate.

\*  $Q_{bar}$  is the peak rate of flow from a catchment for the mean annual flood. This has a return period of approximately 1 in 2.3 years.

\*\*  $Q_{med}$  is the peak rate of flow from a catchment for the median annual flood. This has a return period of approximately 1 in 2 years.

#### Clarification statements

1. Where discharges from the site are directly to a surface water body that can accommodate uncontrolled surface water discharges without any impact on flood risk from that surface water body, e.g. the sea or a large estuary or a water body specifically identified by the lead local flood authority, then this Standard need not apply.
2. Clear evidence should be provided that 'a SuDS approach' to surface water management has been developed from the earliest stages of planning, and fully integrated throughout the development and its landscape design.
3. An estimate of the greenfield runoff rate(s) for the appropriate return periods should be made using one of the approaches set out in The SuDS Manual (Woods Ballard et al., 2015), i.e. IH124 (Marshall and Bayliss, 1994), FEH13 statistical method (Kjeldsen et al., 2008) or ReFH2 (Kjeldsen, 2007), or a future new method that has been demonstrated to

be appropriate for SuDS design.

4. The fixed runoff rate that is deemed not to exacerbate flood risk in the receiving waterbody should be agreed with the local planning authority or relevant flood risk management authority.

*Note: This fixed runoff rate has routinely been taken as 2 l/s/ha, as described in The SuDS Manual (Woods Ballard et al., 2015). There is some evidence (HR Wallingford (2003) and results from the site testing undertaken as part of this project) that suggests this limit could be raised to 3 l/s/ha. Recommendations regarding a suitable rate would need to be based on further study.*

5. Where a 'relaxation factor' is agreed and applied for previously developed sites, clear evidence should be provided explaining why greenfield rates cannot be achieved. A relaxation factor of between 3 and 5 (i.e. allowing 3 to 5 times the greenfield runoff rate) is likely to be appropriate, unless otherwise specified by the local planning authority or relevant flood risk management authority.
6. For small sites, a minimum discharge limit for flows from the site may be agreed with the local planning authority or relevant risk management authority. It is recommended that this should be no greater than 2 l/s.
7. Clear evidence should be provided that sufficient storage is included within the proposed design so that peak flow rates are limited to those required by the Standard.
8. Where the 1 in 100 year discharge rate is used by the design, clear evidence should be provided that the volume of runoff from the proposed development is not greater than the greenfield runoff volume for the 1 in 100 year, 6 hour rainfall event. An estimate of the greenfield runoff volume should be made using one of the approaches set out in The SuDS Manual (Woods Ballard et al., 2015), i.e. FSSR16 (Institute of Hydrology, 1985) or ReFH2 (excluding baseflow), or a future new method that has been demonstrated to be appropriate for SuDS design.
9. A percentage runoff of 100% should be used for runoff from impermeable surfaces.
10. Where runoff from landscaped areas drains to the surface water management system, and these areas exceed 40% of the development site area, then runoff from these areas should be accounted for in the design inflows.
11. The most up to date rainfall model (currently FEH13) should always be used for drainage design, with the most up to date government recommendations on climate change uplift factors for rainfall intensities.
12. An urban creep uplift factor should be applied to all impermeable surfaces, where permitted development could occur in the future, unless an alternative factor is agreed with the local authority. The factor should be agreed with the local planning authority prior to design.

\* 26. How clear is this standard and clarification statements? Please select one.

	Clear	Not clear	Don't know
Standard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarification statements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. If you answered 'not clear' or 'don't know' please provide details of any changes to the wording of the standard and/or clarification statements that may be needed. (Max 500 characters)

Standard

Clarification statements

\* 28. Can this standard be delivered? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

29. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to deliver? (Max 500 characters)

Standard

Clarification statements

\* 30. Will it be possible to assess compliance with this standard? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

31. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to assess? (Max 500 characters)

Standard

Clarification statements

32. What additional guidance or tools are needed to deliver and/or assess compliance with this standard?

Please select all that apply.

- None
- Reference to the CIRIA SuDS Manual
- Design proforma
- Design process diagram
- Checklist
- Design tools (please specify)
- Other (please specify)

Specify here (max 100 characters)

33. Are there any other aspects related to the delivery and/or assessment of this standard that we should consider? (Max 500 characters)

Standard 4 – Managing the quality of runoff

**Objectives and desired outcomes**

The objectives and desired outcomes for Standard 4 are the following:

- Minimum risk of transfer of urban diffuse pollutants from the development site to receiving waterbodies directly or via sewers
- The quality of the receiving waterbody is protected and opportunities are taken to support improvements to the quality of the receiving waterbody
- Water in SuDS located in accessible and visible space does not present an unreasonable health and safety risk to the public
- Easily maintainable surface water management systems.

**STANDARD 4: WATER QUALITY**

Apply 'a SuDS approach' that manages the quality of the surface water runoff to prevent pollution and protect both groundwater and surface water.

**Clarification statements**

1. Clear evidence should be provided that 'a SuDS approach' to surface water management has been developed from the earliest stages of planning, and fully integrated throughout the development and its landscape design.
2. Clear evidence should be provided that runoff from all impermeable surfaces is sufficiently treated before discharges are made to either groundwater or surface waters.
3. The water quality design can be considered as sufficient if evidence is provided of the following:
  - a. Appropriate components have been included (in series as a 'management train' where required) and assessed using an evaluation approach approved for use by the approving body, e.g. the Simple Index Approach as described in The SuDS Manual (Woods Ballard et al., 2015); and
  - b. The SuDS components used to provide treatment have been designed for effective water quality management as well as to meet hydraulic performance criteria, following guidance on individual component design set out in The SuDS Manual (Woods Ballard et al., 2015); and
  - c. Where manufactured treatment products are necessary, they have been tested and designed to an approved industry standard and assessed for their contribution to the required treatment using an industry approved method.
4. The drainage of sites with high pollution hazards, as defined in The SuDS Manual (Woods Ballard et al., 2015), will require a risk assessment as part of planning and permitting requirements. The local planning authority will determine whether the environmental regulator needs to be consulted.
5. Clear evidence should be provided that the approach to managing runoff quality has been developed alongside and in support of the management of everyday rainfall (Standard 2) and the delivery of amenity and biodiversity benefits (Standards 5 and 6).

\* 34. How clear is this standard and clarification statements? Please select one.

	Clear	Not clear	Don't know
Standard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarification statements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

35. If you answered 'not clear' or 'don't know' please provide details of any changes to the wording of the standard and/or clarification statements that may be needed. (Max 500 characters)

Standard

Clarification statements

\* 36. Can this standard be delivered? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

37. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to deliver? (Max 500 characters)

Standard

Clarification statements

\* 38. Will it be possible to assess compliance with this standard? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

39. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to assess? (Max 500 characters)

Standard

Clarification statements

40. What additional guidance or tools are needed to deliver and/or assess compliance with this standard? Please select all that apply.

- None
- Reference to the CIRIA SuDS Manual
- Design proforma
- Design process diagram
- Checklist
- Design tools (please specify)
- Other (please specify)

Specify here (max 100 characters)



41. Are there any other aspects related to the delivery and/or assessment of this standard that we should consider? (Max 500 characters)

Standard 5 – Implementing SuDS with amenity value

**Objectives and desired outcomes**

The objectives and desired outcomes for Standard 5 are the following:

- SuDS are designed to generate well-being benefits for people
- SuDS are designed to improve the quality, liveability and climate resilience of developments
- SuDS design is considered and integrated throughout the development via the masterplanning process, not only in the design of amenity space
- The amenity value of SuDS is a design consideration for all accessible spaces/places
- The amenity potential of the drainage system is maximised, in ways that also support the delivery of benefits for wildlife.

**STANDARD 5: AMENITY**

Design SuDS that generate amenity benefits.

### Clarification statements

1. Clear evidence should be provided that 'a SuDS approach' to surface water management has been developed from the earliest stages of planning, and fully integrated throughout the development and its landscape design.
2. Clear evidence should be provided that:
  - a. Opportunities have been taken to deliver visual, recreational and well-being value through SuDS design;
  - b. The SuDS components contribute to place-making, and are both physically and visually integrated into the site design, creating accessible and attractive landscape features;
  - c. Appropriate design input has been provided by landscape and planning professionals.
3. Clear evidence should be provided that the runoff has been treated so that it is safe for the proposed amenity function of the SuDS component.
4. Clear evidence should be provided that the design of SuDS to deliver amenity value has been developed alongside and in support of requirements to deliver biodiversity (Standard 6).

\* 42. How clear is this standard and clarification statements? Please select one.

	Clear	Not clear	Don't know
Standard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarification statements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

43. If you answered 'not clear' or 'don't know' please provide details of any changes to the wording of the standard and/or clarification statements that may be needed. (Max 500 characters)

Standard	<input type="text"/>
Clarification statements	<input type="text"/>

\* 44. Can this standard be delivered? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

45. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to deliver? (Max 500 characters)

Standard

Clarification statements

\* 46. Will it be possible to assess compliance with this standard? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

47. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to assess? (Max 500 characters)

Standard

Clarification statements

48. What additional guidance or tools are needed to deliver and/or assess compliance with this standard? Please select all that apply.

- None
- Reference to the CIRIA SuDS Manual
- Design proforma
- Design process diagram
- Checklist
- Design tools (please specify)
- Other (please specify)

Specify here (max 100 characters)

49. Are there any other aspects related to the delivery and/or assessment of this standard that we should consider? (Max 500 characters)

Standard 6 – Implementing SuDS with biodiversity value

**Objectives and desired outcomes**

The objectives and desired outcomes for Standard 6 are the following:

- The design, implementation and long-term maintenance of SuDS generates benefits for wildlife
- Linkages between SuDS design and the delivery of BNG are defined, and SuDS are a mechanism for development to achieve BNG when adhering to industry BNG good practice (CIEEM, CIRIA, IEMA, 2016)
- When it is not possible or appropriate for SuDS to count towards BNG, for the design of SuDS to benefit wildlife at the site and landscape level
- The biodiversity potential of the drainage system is maximised in ways that contribute towards social and environmental benefits, for example enhancing people's wellbeing and enriching the amenity value of the development
- The resilience of habitats and the wildlife they support (to climate change) is improved through the delivery of SuDS.

**STANDARD 6: BIODIVERSITY**

Design SuDS that generate habitat and biodiversity benefits.

### Clarification statements

1. Clear evidence should be provided that 'a SuDS approach' to surface water management has been developed from the earliest stages of planning, and fully integrated throughout the development and its landscape design.
2. Clear evidence should be provided that the SuDS design:
  - a. Creates new valuable habitat and/or enhances and restores existing habitats across the site by creating healthy, well-functioning ecosystems;
  - b. Supports the delivery of local biodiversity strategies and helps combat biodiversity loss;
  - c. Helps to establish resilient and coherent ecological networks;
  - d. Minimises risks of introducing invasive species.
3. Clear evidence should be provided that, where SuDS components are used for the delivery of biodiversity net gain (BNG), current BNG good practice and metrics are applied.
4. Clear evidence should be provided that appropriate design input has been provided by ecology professionals.
5. Clear evidence should be provided that the design of SuDS to deliver biodiversity benefits has been developed alongside and in support of requirements to deliver amenity benefits (Standard 5).

\* 50. How clear is this standard and clarification statements? Please select one.

	Clear	Not clear	Don't know
Standard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clarification statements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

51. If you answered 'not clear' or 'don't know' please provide details of any changes to the wording of the standard and/or clarification statements that may be needed. (Max 500 characters)

Standard

Clarification statements

\* 52. Can this standard be delivered? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

53. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to deliver? (Max 500 characters)

Standard

Clarification statements

\* 54. Will it be possible to assess compliance with this standard? Please select one.

- Always
- Most of the time
- Sometimes
- Never
- Don't know

55. If you answered 'sometimes' or 'never', what changes to the wording of the standard and/or clarification statements would make it easier to assess? (Max 500 characters)

Standard

Clarification statements

56. What additional guidance or tools are needed to deliver and/or assess compliance with this standard? Please select all that apply.

- None
- Reference to the CIRIA SuDS Manual
- Design proforma
- Design process diagram
- Checklist
- Design tools (please specify)
- Other (please specify)

Specify here (max 100 characters)

57. Are there any other aspects related to the delivery and/or assessment of this standard that we should consider? (Max 500 characters)

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Skills and knowledge

58. What expertise do you foresee you will require within your organisation to deliver and/or assess compliance with the standards? Please select all that apply.

	Standard 1: Runoff destination	Standard 2: Managing everyday rainfall	Standard 3: Managing extreme rainfall	Standard 4: Water quality	Standard 5: Amenity	Standard 6: Biodiversity
Drainage engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landscape architect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Planner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ecologist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Highways engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Architect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Specify here (max 100 characters)

59. Please indicate whether the necessary expertise is present in your organisation and would be an available resource for the purpose of either designing SuDS to meet the standards or assessing compliance with the standards? Please select all that apply.

	Standard 1: Runoff destination	Standard 2: Managing everyday rainfall	Standard 3: Managing extreme rainfall	Standard 4: Water quality	Standard 5: Amenity	Standard 6: Biodiversity
Drainage engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landscape architect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Planner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ecologist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Highways engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Architect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Specify here (max 100 characters)



Draft update of the Non-statutory technical standards for sustainable drainage systems

Thank you

60. Please use the text box to provide any other additional comments. (Max 500 characters)

Thank you for taking the time to complete the survey.

Your feedback will be used to inform recommendations to Defra on updates to the Non-statutory technical standards for SuDS.