



Department
for Environment
Food & Rural Affairs

Recommendations to Update Non-Statutory Technical Standards for Sustainable Drainage Systems (SuDS)

Final Report Annex F: Review of the implementation of Schedule 3 in Wales

February 2021



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Acronyms

25YEP	25 Year Environmental Plan
AQMA	Air Quality Management Area
ASA	Association of SuDS Authorities (formerly LASOO)
B£ST	Benefits of SuDS Tool
BBBCC	Building Better, Building Beautiful Commission
BNG	Biodiversity Net Gain
CCC	Committee on Climate Change
CIC	Construction Industry Council
CIEEM	Chartered Institute of Ecology and Environmental Management
CIHT	Chartered Institute of Highways and Transportation
CIRIA	Construction Industry Research and Information Association
CSO	Combined Sewer Overflow
DCG	Design and Construction Guidance
DMRB	Design Manual for Roads and Bridges
DWMP	Drainage and Wastewater Management Plan
EIP	Environmental Improvement Plan
ENG	Environmental Net Gain
ETF	European Training Foundation
FWMA	Flood and Water Management Act
GI	Green Infrastructure
HA	Highway Authority
HBF	Home Builders Federation
IEMA	Institute of Environmental Management and Assessment

IWM	Integrated Water Management
LA	Local Authority
LASOO	Local Authority SuDS Officer Organisation
LDO	Local Development Order
LEP	Local Enterprise Partnership
LI	Landscape Institute
LLFA	Lead Local Flood Authority
LNP	Local Nature Partnership
LPA	Local Planning Authority
MHCLG	Ministry of Housing, Communities and Local Government
NDG	National Design Guide
NERC	Natural Environment Research Council
NPPF	National Planning Policy Framework
NSTS	Non-Statutory Technical Standards
PCT	Primary Care Trust
POS	Public Open Space
PPG	Planning Practice Guidance
RBMP	River Basin Management Plan
RPS	Regulatory Position Statement
SAB	SuDS Approving Body
SMNR	Sustainable Management of Natural Resources
SPD	Supplementary Planning Document
SuDS	Sustainable Drainage System
TfL	Transport for London
WaSC	Water and Sewerage Company

WFD Water Framework Directive

WLGA Welsh Local Government Association

1 Introduction

This Annex forms part of the Final Report for the research project *Recommendations to Update Non-Statutory Technical Standards for Sustainable Drainage Systems (SuDS)*. Reference should be made to the main body of the report for details of the project aims and objectives and the overall approach taken.

This Annex provides details of the review of the implementation of Schedule 3 of the Flood and Water Management Act (2010) (FWMA) in Wales, which was undertaken as part of this project.

This review has been in two parts:

- a) A review of the implementation process, resulting in the Welsh SuDS Standards by Phil Chatfield - the Welsh Government Water Policy Project Manager during the period of implementation of Schedule 3 of the FWMA responsible for managing the policy development, consultations, secondary legislation and related stakeholder engagement.
- b) Interviews with Welsh stakeholders to discuss the application of the Standards to date (see below).

During July 2020 seven interviews were undertaken with Welsh stakeholders involved in the delivery of their Statutory standards for SuDS. Interviews were held with:

1. Welsh Government and Welsh Local Government Association
2. Home Builders Federation (HBF) with representatives from Wates and Llanmoor Homes
3. Caerphilly County Borough Council
4. Swansea Council
5. Vale of Glamorgan
6. Flintshire County Council
7. Cardiff City Council

Representatives from the SuDS Approving Body (SAB) were interviewed from five local authorities (LAs). These were selected following discussion with Welsh Government and other SAB officers to ensure a variety of different LA and catchment areas were covered.

The interviews were undertaken to obtain opinion on how the Welsh SuDS standards have been applied, as well as how the individual standards are evaluated, the challenges and enablers, as well as explore suggestions for potential changes to secure better outcomes.

The feedback obtained via the interviews can be found in Section 3. Comprehensive notes from individual interviews can be found in Appendix A.

2 Review of the Welsh SuDS process

2.1 Background and drivers for the Welsh approach

The development of an understanding of sustainable drainage in Wales was driven to an extent by work undertaken by the Environment Agency for England and Wales in the early 2000s. A SuDS Wales group, which involved key stakeholders in the water industry, local authorities, regulators, government and others, was established with support from Welsh Water and the Environment Agency Wales around 2005. The SuDS Wales group drew on information from within and outside Wales to promote the multiple benefits of SuDS, principally through their web site¹.

Following the 2007 floods in England, the Westminster government commissioned Sir Michael Pitt to produce a report and recommendations on the flooding. An interim report, *Learning lessons from the 2007 floods*, was published in December 2007 (Cabinet Office, 2007). The full report was published in June 2008 (Cabinet Office, 2008). The report contained a number of specific recommendations relating to sustainable drainage.

Although prepared for England only, the Welsh Ministers chose to consider the Review, and to assess its appropriateness for Wales. In a Written Statement dated 17 December 2008, the Minister for Environment, Sustainability and Housing stated the findings of the Review were consistent with the principles underpinning the Welsh Government's New Approaches Programme for flood risk management and the work already underway in Wales. The New Approaches Programme aimed to facilitate a move from a defence dominated system to a more holistic, risk management, approach to flooding. Whilst most of the recommendations related to flood forecasting, emergency planning, flood awareness and warning systems, the need for a wider range of interventions to address flood risk was recognised.

Having identified the need for legislative change, Welsh Ministers agreed to work with the UK Government on legislation to implement some of the Pitt recommendations. This included recommendations relating to SuDS. At this stage there had already been consultation on implementing SuDS in England (Defra, 2008). A consultation on the proposed legislation was published in 2009 (Defra and Welsh Assembly Government, 2009). This included some questions specific to the implementation of a new approach to SuDS in Wales.

¹ www.sudswales.com

Following this consultation, the two Governments worked together in developing the Flood and Water Management Act 2010 (the Act). The Act contains the framework for a 'SuDS approving body' (SAB) and statutory standards for SuDS. The expectation was these standards would address quantity, quality and amenity/biodiversity. The SuDS approach uses a wide range of techniques which have the potential, when well designed, to address not only flood risk but also to protect and improve water quality and the wider water environment, a key aim of the Water Framework Directive (WFD). In the context of the WFD, SuDS were seen as an important measure to tackle the problem of diffuse pollution, particularly from urban runoff.

The Act conferred powers for the development of Regulations and Orders which would provide the details of how the SuDS approval process would operate and required Ministers to develop suitable standards. Initially, the Welsh Assembly Government worked with Defra in developing this subordinate legislation and the standards. The Construction Industry Research and Information Association (CIRIA) was engaged by Defra in 2010 to develop the National Standards, (from an evidence-base) and supporting Statutory Guidance. A National Standards Project Advisory Board, which included a Welsh Assembly Government representative, was established to provide technical advice to CIRIA during the development of the Standards. However, differences in approach became apparent in the process of writing a joint consultation document on the Orders and Regulations needed to implement the Act in 2011 and the Welsh Government² withdrew.

The commitment to implementing the Act in Wales lay, in part, with the perceived wider benefits of the SuDS approach, beyond simply managing flows. SuDS were and are embedded in planning guidance in Wales (Welsh Assembly Government, 2004) and the Act was seen as facilitating their implementation, as *The Pitt Review* recommended (Pitt, 2008).

The importance of sustainable development for the future of Wales increased since 2010, with a growing emphasis on natural resources management. The Welsh Government *Water Strategy*, published in May 2015 (Welsh Government, 2015a) pulled together these different strands for water policy. SuDS were seen to be a part of this wider approach, with an important part to play in delivering both more sustainable new developments and in improving the sustainability of existing developed areas through retrofit schemes. The Well-being of Future Generations (Wales) Act 2015 and The Environment (Wales) Act 2016 (which introduced the concept of the Sustainable Management of Natural Resources – SMNR) provided a legislative framework for sustainability for Wales that all new policies then needed to take into account.

There has been an increasing emphasis on 'Placemaking' in new developments in Wales, reflecting a desire not just to deliver new homes but to ensure they are part of attractive

² The Welsh Assembly Government became known as the Welsh Government in 2011.

and connected communities. This culminated in the publication of a revised *Planning Policy Wales* in 2018 (Welsh Government, 2018a). This aims to deliver the vision of Wales set out in the Well-being of Future Generations Act: a more prosperous Wales, a resilient Wales, which supports healthy, functioning ecosystems and recognises the limits of the global environment, a healthier Wales, a more equal Wales, a Wales of more cohesive communities, a Wales of vibrant culture and a globally responsible Wales.

In summary, the Welsh Government has viewed the SuDS approach in the light of its ability to deliver against a range of benefits, beyond simple flood risk management. Benefits for water quality and the wider environment are seen as aiding delivery of an improved environment and better compliance with EU Directives and SMNR. Amenity and recreational benefits are seen to be contributing to the creation of better places to live and over all of this is delivery against the aims of the Future Generations legislation.

2.2 Planning in Wales

There are a relatively small number of Local Authorities in Wales compared to England, with 22 Unitary Authorities and three Parks Authorities with planning responsibilities. It was considered that having a single authority with responsibilities from planning to highways, including the Lead Local Flood Authority role would simplify the implementation of sustainable drainage policy. In addition, for most of the time the standards were under development, planning and environment were under one minister. This facilitated very close collaboration between colleagues in planning, flood risk management and water policy.

2.3 The origins of the Welsh SuDS Standards

The Welsh SuDS Standards were based on an early draft of standards developed by CIRIA for joint use in England and Wales. This draft addressed the destination of the discharge, quantity, quality and visibility, amenity and biodiversity. These reflected the original concept of SuDS in providing multiple benefits, as reflected in the first SuDS Design Manual (CIRIA, 2000). This document introduced the concept of the Urban Drainage Triangle, in which quantity, quality and amenity are given equal weight in design, rather than simply addressing volumes and flow rates.

To assist in understanding the basis for the Welsh SuDS Standards, there is an introductory Principles section on SuDS drainage design. The early draft of standards developed by CIRIA for Defra in 2010 also included a similar set of principles.

These principles underpin the design of surface water management schemes to meet the Welsh SuDS Standards. According to the Principles, SuDS schemes should aim to:

- Manage water on or close to the surface and as close to the source of the runoff as possible;
- Treat rainfall as a valuable natural resource;
- Ensure pollution is prevented at source, rather than relying on the drainage system to treat or intercept it;
- Manage rainfall to help protect people from increased flood risk, and the environment from morphological and associated ecological damage resulting from changes in flow rates, patterns and sediment movement caused by the development;
- Take account of likely future pressures on flood risk, the environment and water resources such as climate change and urban creep;
- Use the SuDS Management Train, i.e. use drainage components in series across a site to achieve a robust surface water management system (rather than using a single 'end of pipe' feature, such as a pond, to serve the whole development);
- Maximise the delivery of benefits for amenity and biodiversity;
- Seek to make the best use of available land through multifunctional usage of public spaces and the public realm;
- Perform safely, reliably and effectively over the design life of the development taking into account the need for reasonable levels of maintenance;
- Avoid the need for pumping where possible; and
- Be affordable, taking into account both construction and long term maintenance costs and the additional environmental and social benefits afforded by the system.

In addition, applications should be accompanied by proposals for a maintenance plan and the means of funding for the scheme for its design life.

Applicants seeking SAB approval must demonstrate how they have complied with these principles or provide justification for any departure.

2.4 Summary of the Welsh SuDS Standards

The six Welsh SuDS Standards address:

- S1. Surface water runoff destination

- S2. Surface water runoff hydraulic control
- S3. Water Quality
- S4. Amenity
- S5. Biodiversity
- S6. Design of drainage for construction, operation and maintenance

There are two types of Standards: S1 is a Hierarchy Standard, while S2 to S6 are Fixed Standards. The Hierarchy Standard (S1) gives criteria for prioritising the choice of runoff destination. The Fixed Standards (S2 to S6) give:

- Design Standards which state the minimum design criteria that all SuDS should satisfy; and
- Standards which state how SuDS should be built, maintained and operated

Given the scale of the proposed changes to surface water management requirements on new developments and the new approval process, the Welsh Government decided to provide as much support to developers, designers and regulators as possible. As a consequence, the Standards were published with guidance on each of the standards and links to readily available technical information (Welsh Government, 2019a).

2.5 Development of the Welsh SuDS Standards

Early drafts of the Welsh SuDS Standards separated peak runoff flow rate and runoff volume and included single standards for:

- Visibility, Adaptability and Biodiversity;
- Design Standards; and
- Construction Standards.

The current Welsh Standards (Welsh Government, 2019a) therefore differ from those first developed in addressing quantity (volume and flow rates) in a single standard, splitting Amenity and Biodiversity and providing a single standard for construction, operation and maintenance. In addition, there is a much greater emphasis on the principles.

The initial consultation on the Welsh SuDS Standards was undertaken between February and April 2015 (Welsh Government, 2015b). The timing of the consultation and publication of the standards coincided with consultations on the Water Strategy for Wales as well as

the development of the Future Generations legislation. The holistic approach adopted for the SuDS Standards was seen as being very much in line with the aims of both.

The Welsh SuDS Standards were revised following the consultation and issued on a voluntary basis in January 2016 (Welsh Government, 2016a) to allow those affected to gain some experience in how they would work once they became statutory. The Welsh Government also treated this as an extended consultation, hoping to learn from users experience before the Standards became mandatory.

The need to make the Standards mandatory rapidly became apparent as a result of feedback from Local Authorities and the decision was made during 2017 to progress the implementation of Schedule 3 of the FWMA. Consultation on the draft statutory instruments and national standards needed to implement Schedule 3 for the use of SuDS on new developments was completed by February 2018.

Most of the responses thought the Standards were clear. However, a small number expressed the view they were too complex and that they would be unworkable or required additional guidance. In response, the Standards were simplified and clarified to take account of comments. The guidance was also amended to provide a more logical structure and to reduce repetition.

The Principles and Standards place a strong emphasis on managing water on/at the surface and close to source (part of the first Principle is to manage water on or close to the surface). A number of manufacturers of underground proprietary products expressed concern about this. However, the Welsh Government response made it clear the use of underground systems, including pipes and some proprietary systems was not prevented. But it re-emphasised the principles of managing water on/at the surface and close to source. It made clear the preference for designs which deliver multiple benefits, including recreation, biodiversity and amenity, as well as protecting water quality and reducing flood risk. Such systems would help to ensure new developments in Wales take account of the Welsh Government's policies for sustainable development and its wellbeing goals in their design.

A commitment to work with a range of interested organisations to write simplified guidance for small developments, outlining how compliance with the standards could be readily achieved on such sites was made. The Welsh Government are currently on track to deliver a small developer guidance document by spring 2021.

In response to a question relating to the availability of relevant guidance, a number of additional resources were identified. As a consequence, a new Section 6 was included in the Standards document with additional references and useful sources of information

The legislation was enacted in January 2019 and the Standards published together with embedded implementation and approval guidance.

2.6 Evaluation of multiple benefits

The Regulatory Impact Assessment which accompanied the package of secondary legislation in October 2018 (Welsh Government, 2018b) considered a very wide range of benefits, from reduced flood risk to health and biodiversity. A proportionate approach was taken, with the impacts 'screened' for significance. Where costs and benefits were likely to be small, or impacts considered likely to affect only a few organisations/firms, or many organisations/firms to a very small degree, they were not valued. Significant environmental and social impacts were valued using the CIRIA *Benefits of SuDS Tool, B&ST* (CIRIA, 2019).

2.7 Performance metrics

Of the six standards, the first is a simple hierarchy. Of the remainder, only the second, which relates to runoff quantity and rate is readily amenable to performance metrics. The guidance for this Standard provides more information on how it can be met. The Standard for water quality does not contain specific water quality objectives, in part because of the difficulty of both treating and monitoring rainfall driven discharges. The approach taken is rather to provide guidance on how water quality can be protected through the design of both the development and the drainage system to minimise the generation and transmission of pollutants.

2.8 Supporting implementation of the Standards

The majority of significant development in Wales occurs along the M4 corridor in south Wales and to a smaller extent in the north east. Technical staff from LAs provided valuable advice in the development of the standards and in their implementation.

The Welsh Government recognised the need to help the three national parks authorities which have responsibility for planning in their areas and the 22 unitary LAs who would take on the new role as SuDS approving bodies. This was addressed in a number of ways.

It was clear there would be a shortage of suitably experienced staff. Often the highways section took the lead for an authority. LAs were therefore encouraged to work together and share skills and experience.

To help improve understanding of the new process, Guidance (Welsh Government, 2019a) and a set of 'Frequently asked questions' (Welsh Government, 2019b) were made available through the Welsh Government website.

A training package was developed specifically for use in Wales by experienced trainers, adapted from training available from CIRIA. This was made available to local authority members and staff, developers, contractors and others who might be affected. It was

delivered in sessions held at sites across Wales and the materials were designed to be made available to facilitate the ongoing training of new staff in LAs. A series of webinars have since delivered this objective.

Throughout this pre-implementation period, the Welsh Government worked closely with the Welsh Local Government Association (WLGA) and the SuDS Advisory Group to mitigate the undesired risk of each local authority interpreting the Standards in its own way and causing confusion for developers. Although this risk could not be eliminated, efforts to mitigate this included the participation of the Advisory Group in the development of the Statutory Guidance. The WLGA also undertook work to develop a common application form with shared information for applicants. Sharing the training sessions with developers and their consultants was further intended to help both sides have a common understanding of the aims and expectations of the Welsh Government in the implementation of the Standards.

The importance of seeking drainage solutions for new developments which deliver multiple benefits has been emphasised throughout this programme. The need to move beyond the traditional approach to surface water drainage has been underlined by the Future Generations duties imposed on LAs and by the need to ensure adequate provision is made for climate change. This is further emphasised through the planning system and related guidance.

One particular issue became apparent in the run-up to implementation. LAs were reluctant to commit resources to the implementation of the SuDS provisions of the Act. Like all local government, they were short of resources and were not convinced it would happen, given the long period since the Act was passed. Welsh Ministers took every opportunity to make clear the need to plan for implementation. As a result, some authorities were more proactive and positioned themselves to be able to offer a service to others who were short of expertise.

2.9 Post implementation of Schedule 3

The review of the application of the Welsh SuDS Standards was undertaken through an interview process with selected stakeholders. Further details can be found in Section 3 and Appendix A.

2.10 Lessons learnt

Lessons learned from the implementation process of statutory SuDS standards (that include multiple benefits) for SuDS in Wales include:

- The requirement for multiple benefit SuDS standards was identified as important to help address a number of policy drivers including meeting WFD (water quality),

Welsh Government Water Strategy (Welsh Government, 2015a) (sustainable water management), and Well-being of Future Generations (Wales) Act 2015 (amenity, community resilience, ecology) objectives.

- Standards considered necessary to meet the required objectives included runoff destination, hydraulics (including Interception), water quality, amenity and biodiversity. Text setting out the 'principles' of SuDS design and detailed compliance guidance for each Standard were identified as important to support implementation.
- Particular concerns were expressed through consultation regarding the strength of preference for above ground, vegetated systems and reassurance was required that manufactured products would have a place in supporting an integrated design that maximised benefits.
- Consultation identified a clear need for common frameworks and application forms to ensure consistency of interpretation and implementation.
- Challenges with respect to securing and maintaining appropriate expertise within local authorities meant training and resource sharing were found to be important.

3 Feedback from Welsh stakeholders

3.1 Application of Standards

Many of the interviews with the SABs highlighted the low numbers of full SAB applications received for approval since enactment of the Standards. The SAB applications that have been processed tend to be for minor, smaller scale sites. The SABs are encouraging pre-application discussions as this helps obtain better outcomes.

Interviewees from the SABs and housing developers suggested that designing SuDS schemes to comply with the Welsh Standards was relatively straightforward. The SABs welcomed the statutory Standards with requirements for Interception, amenity and biodiversity, as this gave them greater ability to require multiple benefits and deliver SuDS on the surface that are more aligned with the benefits of green infrastructure.

Welsh Government consider the statutory standards have driven SuDS delivery. However there is more work to be done to deliver high-quality SuDS, particularly with smaller developers, on smaller sites. Improving interactions of the SAB approval process with other local authority functions, primarily planning and highways, is still a challenge. For the future it is hoped that there might be some synergies with the planning application process that can be exploited to assist with the evaluation of the requirements for amenity and biodiversity during the planning and SAB processes.

Interaction with Welsh Water was also raised as another consideration in terms of their acceptance of discharges into their sewers and also their requirements for easements when SuDS are planned near or on top of their infrastructure.

Both Welsh Government and the HBF suggested that initially it was hoped that many of the individual SABs would work cooperatively and share services to 'regionalise' the SAB approval process. This has only occurred with a few LAs.

The Welsh Government explained there are plans to undertake a two-year review of the implementation of Schedule 3 which will include a review of the legislation, the overall approach, Standards and guidance. While it was thought possible that the review could be delayed because of Covid-19 impacts on data collection, it remains the Welsh Government's aim to begin the review in 2021, at a point following the elections to the Senedd (the Welsh Parliament), subject to Ministerial approval.

All of the stakeholders interviewed recognise the changes to introduce Schedule 3 are significant and, while awareness and capacity is increasing, in the future it may be appropriate to make the language and processes for determining compliance more prescriptive. It was also suggested that further awareness and education may be required.

When discussing compliance with the Standards, the SAB interviewees mentioned that applicants need to be encouraged to consider the Standards as a whole suite of requirements, and not in isolation. For the most part SABs also considered that a 'deemed to comply' approach for requirements related to hydraulic control and water quality are pragmatic, as in some instances these can also deliver requirements for amenity and biodiversity. However, there was concern that a deemed to comply approach could simplify the process and the desired outcomes will not be delivered.

All the interviews suggested that the greatest challenges related to the regulatory framework and how the SAB approval process links with planning approval and other local authority functions (highways etc). There was also consensus between the SABs and developers around challenges related to the funding of long-term maintenance with questions about the efficacy and acceptability of commuted sums.

3.2 Assessment of Standards and delivery of multiple benefits

Many of the SABs were more familiar with outcomes related to the drainage discharge and hydraulic control standards (managing volumes and flow rates). As such, the SABs can take an overview on drainage submissions, depending the scale and type of development. There was general agreement that it is easier to get good outcomes (particularly for multiple benefits) on larger sites.

The SABs would prefer applicants to provide a cohesive commentary on the drainage strategy and overall approach.

Comments on the standards are provided below.

3.2.1 Standard 1: drainage discharge destination

There was strong consensus amongst those being interviewed that this standard was relatively easy to assess. However, the hierarchy standard is dependent on applicants understanding and considering underlying geology, ground conditions and the condition of any receiving drainage infrastructure. Welsh Water will not consider a connection to the sewerage system unless the applicant has undertaken infiltration testing.

A few of the SABs were using the *BRE 365* test (Building Research Establishment, 2016) as this was thought to be more conservative approach to assess infiltration. Many of the SABs struggle to require rainwater harvesting. This was primarily related to poor cost effectiveness for most applications, and not including the tank's volume within the storage calculations.

Cardiff City Council has very challenging ground conditions within their area, where infiltration is very difficult to determine, assess and deliver. As a result, they have developed a very detailed set of Frequently Asked Questions related to ground conditions and infiltration. They suggested that more technical direction may be required for Standard 1 with particularly reference to the assessment of ground conditions. It was recognised that where it is possible to infiltrate, Interception is easier to deliver.

3.2.2 Standard 2: hydraulic control

For the most part, this standard was considered fairly straightforward to assess. Hydraulic performance tends to be managed through flow controls. Applicants and SABs struggle with approaches to provide hydraulic control on small, constrained sites or those requiring complex attenuation.

Many of the SABs suggested that applicants, particularly for smaller sites, are not aware of the technicalities of Interception. They therefore prefer to assess compliance with Interception on the basis of 'deemed to comply' approaches (delivering source control, green infrastructure) rather than a detailed hydraulic assessment. This approach (particularly when not infiltrating the runoff) was also considered to deliver benefits in terms of compliance with the water quality, amenity and biodiversity standards, as it encouraged the use of rain gardens, rain planters, etc.

3.2.3 Standard 3: water quality

The SABs explained design and assessment against this standard is heavily dependent on the site context. Developers of smaller sites will tend to use the 'deemed to comply' approach in terms of SuDS component selection. Larger sites, or those with higher receptor risks, will be encouraged to use the Simple Index Approach (SIA) (as outlined in the CIRIA SuDS Manual and the Welsh Standards). Some of the SABs encourage applicants to use the SIA approach at pre-application stage.

A few respondents suggested the guidance in the CIRIA SuDS Manual and the Standards were not detailed enough if there is a significant risk. It was also suggested that further guidance would be useful for 'deemed to comply' in terms of appropriate component sizing and treatment for associated catchment areas.

3.2.4 Standard 4: amenity

The wording to "maximise" benefits for this standard and S5 on biodiversity were thought to both be helpful and challenging. The wording provided the opportunity for flexibility and SAB discretion. However, the lack of prescription is also thought challenging as this also introduces a level of subjectivity that needs to be managed. Some of the SABs struggle to find appropriate input from landscape architects within the local authority.

3.2.5 Standard 5: biodiversity

Some of the SABs obtain input from ecologists within the local authority. Others just ensure that no invasive species are included. The Welsh Government and a few of the SABs suggested it might be useful to quantify the Standard in the future. Reference was made to Swansea's urban green factor which is being used for Swansea City Centre. However, at the moment it might be prudent to retain the wording and approach which enables flexibility as SABs and applicants become more familiar with the requirements.

3.2.6 Standard 6: construction, operation and maintenance

Compliance with this standard was thought to be relatively straightforward by the SABs. The SABs are reliant on the guidance in the CIRIA SuDS Manual and the provision of sufficient information from the applicants can be a challenge to obtain.

3.3 Challenges to delivering multiple benefits

Awareness - the interviewees explained that awareness of the statutory Standards and need for approval was low and that there are many planning applications without the necessary SAB approval application. Many of the SABs also explained that SuDS are still

not being considered early enough in the process which would enable the design of integrated SuDS and a more efficient SAB approval and compliance process.

Skills – those involved in developing drainage submissions, particularly smaller developers and consultants may not have the skills or knowledge to adhere to all of the SuDS standards, particularly amenity and biodiversity. Some SABs were also finding it difficult to obtain specialist input for the amenity and biodiversity standards. Where this additional support is not available the SAB officer often uses a checklist approach.

Understanding of SuDS approach – many of the SABs suggested (particularly Caerphilly and Cardiff) that there is a lack of understanding of basic SuDS principles, like the SuDS Management Train and source control. This is particularly the case amongst smaller developers. Some of the SAB officer's commented that the development and planning process created challenges with developers not considering drainage and SuDS early enough in the process. This often means that developers "squeeze" SuDS into the development.

Site context – many of the respondents suggested that developers of smaller sites, where space is constrained and the ground conditions did not facilitate infiltration, struggled to comply with Interception, amenity and biodiversity requirements. A few interviewees mentioned compliance with Standards 1 and 2 are relatively easy to assess and deliver. Standards 3, 4 and 5 can be more challenging and greater discretion is required.

Inconsistency – HBF and the housing developers remarked that approaches to review drainage submissions and applications seem to be very subjective and vary considerably between SABs. Some SABs rigorously reviewed drainage submissions against all standards, others considered the context and took what they believed was a pragmatic approach. There are different approaches to managing runoff from developments, whether source control on individual plots is encouraged, or acceptable or not. Some authorities welcome this as an approach to manage and distribute runoff volumes throughout the site. Other SABs, concerned about the need to gain access to private land, would prefer SuDS on public land and no SuDS components on private land. There are also different approaches to the assessment of runoff and the necessary calculations required. There are also some inconsistencies with regards to the interaction of drainage and planning, whether Public Open Space can be included within amenity provision and SuDS. A requirement for separate areas would reduce viability of some sites.

Pre-application process – the housing developers commented that the pre-application process for SuDS is not efficient and potential synergies with planning are not exploited. The developers mentioned that the pre-application process is resource intensive, with numerous iterations which can be expensive.

3.4 Enablers to delivering multiple benefits

Pre-application discussions – applicants receive a written response from the SAB on what could be approved and how the submission could be improved. The SAB can only approve or reject drainage submissions. Some applicants incorrectly presume that, similar to planning, the SAB can condition changes. The pre-application process enables the SAB to explain what is required for a drainage submission to be approved. Some of the SABs commented that when working with smaller developers during pre-application this can often result in them heavily influencing or designing SuDS schemes with the applicants.

Active engagement – Many of the SABs suggested that, while the SAB approval role is predominantly a regulatory role, the SAB officers are providing quite detailed SuDS design advice to facilitate approval of the drainage submission. The housing developers explained formal engagement through the application process meant expensive pre-application discussions and numerous iterations.

Inclusion of Interception – where Interception is delivered without infiltration this is thought to assist with the delivery of multiple benefits (S3, S4 and S5) as SuDS components will tend to be on the surface and include vegetation.

Deemed to comply – many of the SABs use a 'deemed to comply' approach to deliver Interception (S2), water quality (S3). A few of the SABs suggested that rain gardens and rain planters could be used to deliver all/most of the standards. Rain gardens manage surface water close to the surface, and developers can maintain housing density if they are used in highways where they can also be adopted.

Local policy/guidance – a few of the SABs (e.g. Flintshire, Swansea) are considering the development of local guidance to improve the design and evaluation process. Flintshire will also develop a proforma for the provision of information. Swansea is going to work with the highway authority. Many of the SABs also mentioned that it might be beneficial to develop local policy to support outcomes from amenity and biodiversity.

3.5 Potential changes to the standards

There was consensus that with the SAB process being implemented in January 2019 it was still early days and potentially with more applications and experience other suggested improvements could be better identified and suggested.

The majority of suggested changes related to associated regulations and processes. Welsh Government and a few of the SABs suggested that changes may be required to deliver synergies between the local authority drainage and planning application processes in terms of delivering outcomes for amenity and biodiversity.

There were also suggestions around developing an approach for obtaining a sustainable income for adoption and long-term maintenance. At the moment many applications are using management companies, or there are prolonged discussions about acceptable and reasonable commuted sums.

Specific suggestions for changes include:

- **Language** – make the language more robust, changing ‘should’ to ‘shall’, or ‘must’.
- **Greater prescription** – more prescriptive requirements, language and approaches to quantify impact for amenity and biodiversity within the standards were considered helpful.
- **Deemed to comply** – improving guidance in terms of risk and approaches to mitigation and delivering outcomes would be beneficial. Caerphilly suggested it might be useful to consider a simple scoring mechanism for developing and assessing submissions.
- **Guidance** – the developers and some of the SABs suggested that additional guidance for, and/from SABs on what is acceptable would be helpful, particularly for constrained, smaller sites. There are inconsistencies in terms of what is acceptable approaches and SuDS components.
- **Betterment** – a couple of the SABs suggested that further clarity was required on betterment rates. Cardiff suggested that when discharging to the sewer it might be appropriate to formalise input from Welsh Water to determine what the sewer can accept.

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Appendix A – Notes from Welsh stakeholder interviews

A.1 Welsh Government, Welsh Local Government Association

Organisation(s)	Welsh Government; Welsh Local Government Association, Welsh Water	
Date	20/07/20	
Attendance	Eifiona Williams (part)	Welsh Government
	Andrew Sherlock	Welsh Government
	Jean-Francois Dulong	Welsh Local Government Association
	Dominic Scott	Welsh Water (ex-Welsh Government secondee)

What outcomes were you hoping from the Statutory Standards?

Andrew suggested that Welsh Government is keen to deliver multiple benefits and better flood risk management.

Climate and demographic change are driving the need to take pressure off the sewer network, and we cannot keep delivering hard engineered drainage infrastructure as it is neither environmentally nor economically sustainable (or maintainable) over the long term. Drainage needs to work with nature, rather than try to overcome it. SuDS and the Standards should enable greater resilience in terms of climate change, demography and urbanisation. Dominic suggested that the detailed aspirations were to obtain:

- A focus on sustainability and the maximisation of benefits when managing surface water on new developments in Wales;
- Clarity around the principles that the Welsh Government aims to see incorporated into decision making relating to surface water drainage on new developments;
- Clarity around the hierarchy for discharge location;
- Guidance on the approach towards assessment of water quality, biodiversity, amenity and maintenance;

- The flexibility to allow adaptation and innovation to specific site requirements;
- The potential to be strengthened or adapted in the future, based on the lessons learnt from the early years of implementation.

Welsh Government is mandating SuDS, to make it a 'must do', rather than a 'should do', or a 'nice to do'.

Jean Francois suggested that local government have the same aspirations as Welsh Government, there is willingness to comply with legislation, but also a need to obtain synergies between different services which all have a role in delivering SuDS (planning, flood risk management, parks, highways and GI delivery).

The SuDS regime is a new approach to change an established way of working and it is not as straightforward as it could be. The aspiration is to introduce a holistic approach, deliver joined up solutions, and environment and economic resilience.

What are the relationships with other legislation?

There is clear interaction between SuDS and highways, however facilitating adoption is a challenge as the Standards are different. There are some inconsistencies in how highway departments approach SuDS adoption. However, at the moment there have been few, large scale residential developments which makes identification of synergies difficult.

There needs to be greater alignment with planning and the role of planning. A number of applications that go through planning have not progressed to SAB approval and developers still value a planning approval over a SAB approval. There's uncertainty with regards to the planning role, with some LPAs not dealing with surface water drainage at all. The SAB is not a statutory consultee in the planning process and planners cannot condition the need for SAB approval as part of planning applications which may lead to issues down the line (i.e. applications starting work without SAB approval, or need to resubmit a planning applications as the layout is not suitable for SuDS).

Many planning departments engage with the SAB, and some planners no longer consider drainage to be a planning issue. However, WLGA would like planning and drainage/SuDS approval to be more closely aligned. Dominic suggested that in the future challenges around the impacts of drainage on habitats may need to be considered – but it's uncertain where the expertise for the assessment is within local government.

Obtaining interaction between planners and SAB officers is difficult (due to resources) even with the LPA being a statutory consultee to the SAB. Input is likely to be sought for sensitive receptors. Planning applications should consider biodiversity and amenity but requirements are sometimes not formalised during the SAB process and there could be more opportunities for this to be aligned with the SAB and planning process to make it more efficient.

There is recognition in Wales that SAB officers may need to get additional input on amenity and biodiversity and there needs to be resources available to enable the SAB to engage with consultees. There is also an expectation for the statutory consultees, especially NRW to be able to 'step-in' and provide suitable advice around biodiversity and WFD/water quality. Unfortunately, at the moment they are not which may lead to missed opportunities to maximise benefits.

Dominic suggested that in many LAs the SAB process is not yet regarded with the same level of recognition as the established planning and building regulations approval processes or even other licencing activities. There is a need for this to change (which will take time) and for it to be given this acceptance by senior managers for the process to be resourced and supported effectively.

How well have the SABs and construction industry responded to the Standards?

Greatest challenge is around raising awareness of the need to go through SAB. There are still discussions around viability, particularly in terms of integrating dwellings in constrained sites and considering the commuted sums for long terms maintenance.

Larger developers are embracing and welcoming the Standards – probably because they have the resources available. However, communication, awareness and upskilling of smaller developers and their consultants, architects, etc. is a challenge. SABs, designers, consultees tend to prefer to have a checklist approach rather than too much subjectivity.

The scale and pace of change is quite significant in Wales, it will take some time for capacity and competency to improve.

Both Welsh Government and Welsh Local Government question whether the outcomes can be achieved without the Standards being statutory.

How effective have the Principles and Standards been in delivering the intended outcomes?

Welsh Government said that it was too early to tell, but a 2 year review was planned to be undertaken following the first two years of implementation, once enough evidence was available.

However, it might be worth considering strengthening some of the words around 'maximising' amenity and biodiversity. At the moment, the 'softer' nature of the standards provide a useful starting point in the absence of wider experience of designing and assessing such schemes. However, as experience of applicants designing, and SAB approving schemes improve it may be appropriate for the standards and or the guidance to be more prescriptive. At a future stage it may be appropriate to make qualitative

biodiversity and/or amenity standards more quantitative or formal. Conversely, there may be occasions where future exemptions from certain standards apply, e.g. in non-public settings where increased amenity could arguably be deemed inappropriate.

Obtaining good outcomes requires applicants and SABs to be cognisant of the benefits of pre-planning and pre-application discussions and the need for standardised charging. An application proforma has been used for the most part, although some SABs have some variation. The proforma is thought to be a little more cumbersome than anticipated and WLGA will look to streamline the process. This may evolve to a checkbox approach to assist the applicants and SABs once knowledge is sufficiently high. This may also accommodate a deemed to comply approach for smaller developments.

Welsh Government and Welsh Local Government recognise a challenge around delivering SuDS in high density developments and pre-developed sites. Particularly with regards to connectivity and discharge. The 30% reduction in flows can be quite challenging in inner city developments and developers are also reluctant to lose developable area for SuDS.

What are the main influences on quality of submission and completed schemes?

An awareness and understanding of the legislation, Standards, guidance and process has a significant influence on the quality of submissions. Capacity and competency of the SABs and developers also have a bearing on the outcomes.

The introduction of statutory Standards is a big change for most organisations, and many have struggled with the pace of change. Client awareness and preferences have the greatest impact on the specification and instruction for their design consultants.

At the moment good outcomes are dependent on a willingness to collaborate, from the applicant to the SAB and also good interaction between statutory consultees, planning, SAB and highways is essential. There needs to be a culture of engagement and interaction.

There are some SABs that apply the Standards more stringently. These tend to have the resources in place to evaluate and assess the Standards. Six local authorities in North Wales are embarking on developing regional SuDS guidance to provide the level of consistency desired by developers.

The initial objective of the legislation was that some SABs would share services, with SABs collaborating and offering a more regional approach. This has been progressed in Caerphilly where they are offering a review service for neighbouring authorities. Hopefully, more SABs will share good practice.

With the alignment of SuDS and highways, it may become more appropriate to develop common standards for adopted highways to include statutory SuDS. However, highway

adoptions are thought to be challenging, and consistent Standards is challenging, which is further compounded by including requirements for SuDS.

The impact of SuDS components that infiltrate on other assets like highways and sewers can impact on the feasibility of some approaches. It is recognised that SAB officers need to be empowered as local politics and economics can influence both the planning and SAB approval process. The legislation and wording of the Standards are critical in providing the SAB power to request good practice.

It was suggested that statutory Standards do drive the delivery of SuDS. However, it may take a few years to obtain quality once the skills and capacity have been established.

What further support do SABs and the construction industry need?

Resources for those working with SABs is a major challenge.

However, further support will be considered as part of the two year review. It is likely that experiences will be captured particularly on challenges around the Standards and guidance will be further informed. It may be possible there could be amendments to the Guidance, Standards and legislative changes.

At the moment as experience and approaches are still evolving there is a reluctance to share good practice – as people are not sure what ‘is good’.

For the future it may be that there could be an economic stimulus package that aligns GI strategies with SuDS, potentially providing opportunities for apprentices to improve skills within industry.

With the statutory Standards they accept that smaller developers are unlikely to be able to afford modelling as they often do not have the skills or the modelling software. It is therefore likely that a deemed to comply approach/guidance will be used taking into consideration site context (ground condition, size, highways, etc.)

How would you change any of the Standards?

This will be undertaken after the two year review.

However, the Standards around amenity and biodiversity are considered the most challenging to assess and deliver. The language may need to be re-considered and it may be reasonable to make the biodiversity Standard more quantitative.

It may also be possible to make the amenity Standard more quantitative – but this needed to be accessible to all developers, including smaller developers. Although, there may also be a need to introduce more discretionary/flexible approval around amenity as it may not be necessary for all types of development.

Welsh Government may also consider streamlining/aligning the planning process to improve synergies of planning and SAB application. They wish to explore whether the SAB process can align with the planning requirements for amenity and biodiversity. With the biodiversity quantification will it be necessary for the introduction of exemptions for different types of developments.

They also wish to consider the approach and level of climate change uplifts as there needs to be a consistent use of uplift figures.

They may also wish to consider the timing of the process, by potentially starting the SAB application at the start of the planning process.

A.2 Home Builders Federation and members

Organisation(s)	Welsh Government; Welsh Local Government Association	
Date	22/07/20	
Attendance	Mark Harris	Home Builders Federation
	Stuart Jones	Wates
	George Brown	Llanmoor Homes

How well have the SABs and construction industry responded to the Standards?

It is too early to say. A number of the developments are at the pre-application stages.

Wates have been considering the delivery of SuDS for two years for some of their project they delivering in Cardiff. They are delivering social housing for Cardiff City Council.

Llanmoor Homes is a high housing density developer. Quite prominent in the south wales area.

The greatest challenge is delivering SuDS on high density developments. The pre-application process is very subjective, involving the appraisal of schemes, development of solutions and negotiating schemes. The developer often needs to provide a justification for the scheme provided.

While there is a legal framework for the delivery of the SAB role there is very little guidance on the actual requirements of SABs. Requirements and what's acceptable for most SABs has changed/evolved since the SAB role has been introduced. SAB officers are realising the practicalities of their requirements in terms of viability and making the most of site opportunities and constraints.

The SAB pre-application process is not the same as the planning pre-application in terms of efficiency and synergies. Multiple pre-applications meetings (often two to four) are often required, even before developers get to share the detailed scheme. Developing detailed schemes (Stage 4) before planning has been agreed runs the risk of expensive abortive work.

SABs have different approaches to assessing and managing runoff for individual plots. Working with individual plots, helps manage/reduce the discharge through the use flow controls. This can also help reduce the maintenance burden and costs of commuted sums. However, some SABs are not accepting source control on individual plots as they wish to have access to maintain the SuDS features (which may be on private land) and this would require deed of covenants. There are also challenges of single plot SuDS draining to highways.

The developers on the call would prefer to manage water on the surface, however the challenges around space and density often require compromises. It was suggested that there is not enough guidance on the delivery of SuDS in high density developments. There are a number of challenges relating to typography, density, soil types and the approval process is very subjective with the SAB requesting specific components. Some SABs have a very labour-intensive approach, requiring calculations for individual plots and detailed justification of the design approaches for each submission.

The misalignment of planning, highways, SAB and water company requirements is a constant challenge that developers need to overcome. Landscape architects are becoming an important part of the design and approval process both at SABs and developers. Sometimes there is disagreement between different local authority departments and job functions about what is acceptable.

SABs have yet to understand the commercial impact of some of their requirements in terms of the capital and operational costs. Some of the SABs are not prepared to commit to an approach or make a decision as they are not confident that it is the best approach for the situation.

How effective have the Standards been in delivering good outcomes?

The approach to determining development layout and integrating SuDS at the moment can mean that around 15% of the site 'can be lost to SuDS'.

The developers explained that technical compliance with the Standards is not too problematic. Every site needs to be considered on their own merits in terms of opportunities and constraints. The challenge still remains around the engagement and interaction of the SABs and the SAB officers.

Some local authorities are including SuDS within the Supplementary Planning Guidance documents. However, there is often a challenge with planners excluding SuDS within Public Open Space as part of amenity space. This is exacerbating challenges of land-take.

The developers require consistency around:

- Acceptability of plot SuDS (source control), or necessity to manage surface water from a collection of plots (site control).

- Use of QBAR or complex controls
- Integration of SuDS in Public Open space
- Commuted Sum calculations

The developers raised the challenge of dealing with Welsh Water as they require easements for SuDS on top of, or near their infrastructure. They will not allow SuDS features to be above their infrastructure. This applies to other infrastructure providers such as electricity, gas, phone, etc.

There are some challenges around the calculation of commuted sums, spreadsheets are being shared between Councils and updated with local input. The Welsh SuDS implementation group was looking to go to tender on a contract for a consultant to develop a spreadsheet on agreed costs for commuted sums, and for this to be used nationally

The Standards are not specific, it provides generic guidance the overall design is okay. Interception is easier to deliver through a 'deemed to comply' approach. This can be through infiltration, rain gardens and water butts.

What are the main influences on the quality of drainage submissions and completed schemes?

The site context has the main influence on the quality of drainage submissions. Constraints include topography, mining, permeability of soils and services.

It was suggested that in some instance the SAB approval process can determine the quality of the scheme in terms of how the criteria and Standards are understood between the SAB officers and the developers.

What further support do you believe the SABs and the construction industry need?

Council drainage departments have lost capacity and they are under resourced to provide timely feedback, they may also find it hard to recruit suitable staff. Where there is a requirement for input on biodiversity and amenity it is difficult to obtain input on landscape decisions.

The developers recognise that the new approach/regime is very challenging and suggested that it would have been preferable to have a phased implementation of the SAB approval requirements. With a focus on SAB approval for larger developments, this would reduce the number of applications and enable SABs to obtain resources and for them and developers to improve their knowledge and capacity before increasing the number of applications by including smaller developments

It was also mentioned it would have been beneficial if the SAB approval process was implemented regionally. With 4/5 joint SABs operating across Wales enabling better sharing of experiences.

It was suggested that where success has been achieved it would be good to develop case studies and undertake a cost comparison of developments with good SuDS and what the cost would have been with traditional drainage. It was suggested it was likely that certain SuDS solutions would be no more expensive than traditional drainage and it would be beneficial to assess the benefits, although commuted sums were still a big unknown.

How can the relationship between SABs and housebuilders be improved?

The developers suggested that there needed to be earlier and better engagement between the SAB, planners and developers. It would also be preferable for the SAB approval process to be more flexible with feedback and engagement facilitated outside the formal pre-application and approval processes. The process is too regimented with all designs/decisions presented on applications. This early engagement needs to include all relevant departments of the council, highway, planners, landscape, SAB, etc.

Potential changes to the Principles or Standards?

Rainwater harvesting (RWH) is primarily delivered by water butts. Rainwater harvesting is difficult to deliver due to problems of space (primarily for tanks in gardens) and ensuring maintenance is undertaken. It may work for communal systems, particularly within social housing where the maintenance is being undertaken. Developers spend a lot of their time justifying why RWH is not being delivered as it can often be expensive and does not provide sufficient attenuation unless there is enough yield.

The Standards are too broad with the SABs needing to cover water quantity, quality and amenity. Coordination between planners, SAB approval and highways needs to be improved. SuDS is often considered after planning and highways it would be useful if there was more alignment.

Guidance and advice for SABs on acceptable SuDS solutions that they will accept would be helpful. SABs have different responses to attenuation tanks and pervious paving. It would be useful to make requirements clear.

A.3 Caerphilly County Borough Council

Organisation(s)	Caerphilly County Borough Council
Date	13/07/20
Attendance	Mark Goodger, Michelle Johnson, Rhodri Powell

Number of applications

As a SAB Caerphilly has received 31 full applications. 56 requests for pre-application advice. They were expecting more, however the applications are rising.

Since the implementation of Schedule 3, 60 planning applications have been granted permission for which SAB applications or pre-applications have not yet been received. The SAB is actively following up on these and monitoring in case enforcement action is required. Some of these are known to be speculative where planning permission has been sought in order to increase land value prior to forward sale.

Type of development

The majority of the SAB applications are small to medium residential developments. They have received a few commercial applications, including 21st Century Schools which include good SuDS. The larger strategic developments came through before January 2019 when Schedule 3 was implemented.

Aspirations

They encourage applicants to robustly deliver the requirements of the Welsh Standards. The SAB does 'not want pipe-to-pond schemes'. The SAB is keen to have green infrastructure delivered that follows all of the Standards without any compromises.

The SAB is keen to introduce a level playing field without varying requirements as there is a concern about setting a precedent should a Standard be relaxed or confuse applicants where more stringent local requirements are enforced.

Assessing performance against Principles and Standards

The legislation does enable local requirements to be set. However, the SAB has resisted introducing anything too demanding, particularly as the Statutory Standards are robust enough and they're transparent. Technically they request the use of:

- FEH rainfall data instead of FSR
- Specific requirements for considering runoff coefficients (C_v values)
- Use of the BRE 365 (Building Research Establishment, 2016) or CIRIA R156 infiltration tests – “Building Regs” infiltration tests and borehole tests are only considered if there are valid technical reasons why BRE / R156 tests cannot be carried out.

Hydraulic requirements are relatively simple and for Water Quality there is heavy reliance on SIA. Most of the submissions are for small, or low risk sites. They may ask for a more detailed risk assessment if the receptor is more sensitive. However, the guidance provided in *The SuDS Manual* (Woods Ballard *et al.*, 2015) and guidance for Standards is not detailed enough on what other treatment should be delivered if there is greater risk. The SAB therefore tends to accept anything over and above the minimum requirements of the SIA approach.

With Amenity and Biodiversity this is more subjective and they obtain specialist input from ecologists and landscape architects.

They recommend the use of a ‘Deemed to Comply’ approach for Interception as its proportionate and more resource efficient for the SAB approval process.

The 7 week timescale for reviewing of the drainage submissions is challenging, once you consider the 3 week allowance for statutory consultees, development and signing of legal agreements and appropriate quality assurance.

Designing for construction, operation is still challenging to obtain information. They suggested applicants use *The SuDS Manual* (Woods Ballard *et al.*, 2015) for the maintenance obligations. With engineered approaches like permeable paving, geocellular storage there is often a lack of structural analysis and information being submitted with applications and this often has to be requested from the applicants.

With the reliance on hard engineered SuDS components there is the potential for more expensive Bonds and Commuted Sums. The more traditional engineering approaches seem to be expensive to maintain and this can be used as an approach to encourage more surface, vegetative SuDS components.

How effective have the Standards been in delivering good outcomes?

There is still a lack of understanding of basic SuDS principles like SuDS Management Train. Some of the SuDS schemes, particularly for the smaller developers are very hard engineered, or tend to be a (tokenistic) pipe to pond schemes or include token rain gardens that serve little benefit. They often do not consider a simple SuDS approach with distributed SuDS schemes.

There's resistance to 'good' SuDS from some internal and external stakeholders, whether highway engineers, planners, consultants or developers.

Pre-application discussions are key to getting good outcomes. Applicants receive a written response from the SAB on what could be approved. Some of the applicants assume the process is similar to planning, where the SAB can condition certain changes. However, the SAB can either approve, or reject the drainage submissions and only have a very limited scope as to what can be conditioned

Rhodri explained that the Principles can be challenging as developers are often trying to retrofit SuDS around a pre-existing development layout. There's still a perceived tension between SuDS and high-density housing.

With the surface water destination Standards it is very easy to apply an exemption to the requirement for RWH on the basis of not being in a water stressed area.

When applicants raise the challenge of viability the SAB has to explain the SuDS approach and the need to simply consider the flow and management of water before fitting it around housing layouts. They often use the Welsh SuDS Regulatory Impact assessment.

There is a challenge in educating the developers and consultants working on small housing projects. These applicants tend to need advice and the SAB is going to help improve their skills.

Interception, particularly where infiltration is not available/easy helps deliver multiple benefits as these will tend to include surface and vegetative treatment systems. This could also work with a Deemed to Comply approach and help deliver better schemes. Where infiltration is available and Interception is encouraged, there's likely to be an over reliance on infiltration and soakaways.

In terms of biodiversity it could be worth considering Swansea's approach to include the Urban Greening Approach. The current approach within the Standards seem to be aspirational in terms of maximising SuDS biodiversity. Something quantifiable could drive better schemes.

Challenges and constraints

Small sites are particularly challenging. Within Caerphilly sites are urban, on slopes and can be constrained requiring some innovation.

Engagement, preapplication and capacity building will help progress the delivery of good quality SuDS.

While the Standards are outside the 'political arena' there are still some political influences in terms of progressing growth.

What enables/facilitates delivery?

- Planning Policy Wales
- Green Infrastructure Policy
- Caerphilly Biodiversity Action Plan

Other policies developed by the SAB are those for Commuted Sums and they are developing a policy for Bonds (normally for an 18 month defect period, possibly up to 60 months if there is a particular landscape condition).

Bonds are applied on a risk basis, so some sites where flood or pollution risk is low may not require a bond.

For single dwellings, the Bond is typically 70% of the construction cost which is paid back in stages at various inspection periods and at the end of the defect period. The defect liability duration tends to represent two growing seasons where possible / appropriate.

The SAB uses and refers to a wide range of resources to encourage good practice:

- *The Rain Garden Guide*³
- CIRIA's SuDS guidance (various)
- The Green Roof Organisation (GRO) *Green Roof Code*⁴
- Caerphilly's own website with supplementary guidance on infiltration testing and photos of good schemes

The *Rain Garden Guide* is particularly easy to use and helpful for smaller developers.

³ <https://raingardens.info/wp-content/uploads/2012/07/UKRainGarden-Guide.pdf>

⁴ <http://www.thegreenroofcentre.co.uk/Library/Default/Documents/GRO%20ONLINE.pdf>

Potential changes to the Principles or Standards

Include something simpler for smaller developers, particularly the 1 plot houses.

Michelle suggested potentially making Ecology and Planning a Statutory Consultee to combine synergies and strengthen the engagement. Welsh Water and Natural Resources Wales (NRW) are consultees. Welsh Government are pushing for ecological input.

Value in making the Standards more robust changing 'should' to 'shall' or 'must'.

Funding mechanism for adoption needs to be improved. Many applicants are still advocating going to a Management Company. CCBC have a policy in place with respect to Commuted Sums and require adoptable schemes to go down the Commuted Sum route.

The SAB is unable to levy the houseowner and discussions with developers around the Commuted Sum can be quite challenging but the SAB needs to cover their costs.

Biodiversity could be improved by making assessment more quantifiable. Providing a benchmark/baseline for pre-development to support progress.

Deemed to comply, or some simple scoring mechanisms would be helpful for developing and assessing submissions. This makes the assessment less time consuming and can help overcome the challenge with knowledge.

There's some challenge around 'single curtilage' exemptions. Some housing associations are asking for exemption, as they're claiming to be a single property.

A.4 Cardiff City Council

Organisation(s)	Cardiff City Council
Date	14/07/20
Attendance	David Brain, Ian Titherington

Number of applications

As a SAB Cardiff has received 41 full application. 11 have been approved, 11 refused, 1 withdrawn the remaining are ongoing. They've had 64 pre-application discussions.

Type of development

Many of Cardiff's strategic sites went through planning during 2014/2015. They will go for SAB approval once the Reserve Matters are progressed.

The majority of applications are minor residential which can be challenging. There's also a few internal Council applications, primarily for schools.

Many of the applicants for planning permission were not aware of the need to obtain SAB approval, so well over 100 developers have been written to, advising them that they may well require SAB approval, prior to commencement on site. No enforcement action can be taken until they commence works.

Aspirations

The principles within the Welsh Standards are statutory and should be delivered as a result of the six Standards. The Cardiff SAB process focusses on the delivery of Standards.

The SAB is keen for the applicant to provide a narrative of how the site will be drained with appropriate justification for their approach. The SAB is proactive and encourages applicants to go through pre-applications discussions prior to planning approval. This enables a better, more cost-effective design.

Smaller developers need more support to comply with the Standards as they're often working with smaller, more constrained sites. Reference was made to Welsh Government

suggesting they would develop guidance on deemed to comply guidance for small sites – this has yet to be delivered. Welsh Water has some guidance for developers of small sites.

The potential for ‘drainage implications’ from construction activity heavily influences the SAB’s approach. If land use/changes impacts flow routes and hydrological characteristics of downstream and neighbouring land the development is considered by the SAB to have changed drainage characteristics and it therefore needs to be approved by the SAB.

The SAB wants to introduce local planning policy to help underpin approaches to delivering SuDS for all scales of development. This would strengthen the Standards in some places but also provide an opportunity to introduce more flexibility and SAB discretion.

Assessing performance against Principles and Standards

Applicants do not realise the interdependencies of the Standards. Many assume they can be delivered in isolation.

Standard 1 (discharge point) – is the primary concern, the suitability of the SuDS discharge point is heavily influenced by the ability to infiltrate which requires technical assessment. The geology of the Cardiff area is difficult, much of the ground is glacial till and infiltration is difficult to determine and achieve. The SAB has developed technical FAQs to supporting ascertaining the infiltration potential.

The Welsh Standards are quite weak with regards to infiltration and the SAB is more reliant on *The SuDS Manual* (Woods Ballard *et al.*, 2015).

Standard 2 (hydraulics) – is completed with a high level review, checking whether applicants have considered climate change, 1:100, 1:1. Applicants are not necessarily aware of Interception however they follow the advice of the SAB to include source control with green infrastructure. The challenge is when applicants focus on the use of infiltration and soakaways which doesn’t deliver multiple benefits.

For Standards 3, 4 and 5 – to deliver one of them you inherently contribute to the delivery of the other.

The “Deemed to Comply” approach could simplify the process and not deliver on the outcomes. The SuDS used needs to reflect the opportunities of the site and careful consideration needs to be given to infiltration.

The Council’s FAQs should help, but these are quite technical. The SAB requirement has formalised the need for a Drainage Engineer to participate in the delivery of all developments, including small developments. The challenge is that it is an early cost for small developers which many wish to avoid.

The SAB focuses on all 6 standards – if there's no compliance with all 6 the application cannot be approved. However, some flexibility may be required for large applicants where there can be some compensatory approach where biodiversity and/or amenity opportunities may be available outside the redline boundary.

Important for the applicant to comply with Standards 1 (discharge), 2 (hydraulics) and 6 (construction/maintenance) these are never relaxed depending on the site. However, Standards 3 (water quality), 4 (amenity) and 5 (biodiversity) enable an element of discretion where the SAB may take a more "reasonable" approach, whilst not opting out of any of them.

The evaluation and approval process needs to consider the site and focus on the opportunities.

Standard 3 (Water quality) the SIA is used. However, there is concern about the mobilisation of pollutants and the treatment processes need to be considered.

Biodiversity – there's a disconnect with colleagues in different departments and there's a challenge in utilising colleagues' time and experience. Informal input is often obtained from colleagues. The SAB has to give consideration to the inclusion of species and the necessary maintenance. They make linkages between the vegetation supporting pollinators which can also reduce the maintenance requirement.

If maintenance is too high, the SAB requires changes to the submission and design- whoever ends up adopting it.

The challenge will be for Public Open Space and the tension between the drainage function and the contribution to biodiversity. The Council's Tree Officer has been providing invaluable informal input into the SAB approval process.

The SAB is currently learning by doing. Their experiences as they implement the Standards is influencing their approach.

Challenges and constraints

Ground conditions and the potential to infiltrate should be the first consideration. If infiltration can be achieved, amenity and biodiversity becomes easier. If infiltration is not possible (on smaller, pre-developed sites) it is difficult to obtain multiple benefits.

Smaller developments are including rain gardens, the challenge will be when developers stop including rain gardens and are unable to infiltrate. The SAB will then need to consider what is reasonable.

There's now precedent for the SAB to request and applicants to include rain gardens, the SAB therefore needs to be consistent in terms of their requirements for rain gardens if you cannot infiltrate and compliance with the Standards.

What enables/facilitates delivery?

Rain gardens are seen to be useful (particularly in small developments) as they keep the surface water at/close to the surface, developers can also maintain housing density if used in highways where they can also be adopted.

Pre-application discussions are considered vital. The SAB is considering the provision of a service to help assess infiltration that may be useful for small developers. The SAB will offer a service to provide assessment and concept design. This can help determine ground conditions and influence the discharge point.

Engagement with the applicant is also essential. The conversation should start with agreement around the discharge point then location of SuDS component and whether there can be site, regional controls. These can enable the delivery of significant amenity aspects.

On smaller sites the achievement of Interception is often a significant enabler.

Delivering the amenity/biodiversity standard requires engagement and the ability to use discretion to determine reasonableness. The more open the SAB can be, the more likely the applicant will be able to deliver a contribution to amenity and biodiversity.

Previously the drainage engineer at the local authority was a regulatory role. Within Cardiff this is evolving into a design service. The regulatory and approval role is more about engagement and conversation. Approval process should involve the application providing a narrative of the drainage and the SAB could include:

- Checklists on appropriate planting.
- Exemplar sites – different scales on multiple benefits.

The Standards need to drive decisions. Bringing together planning and policies to help deliver the delivery of SuDS components like blue/green roofs.

Potential changes to the Principles or Standards?

Standard 1 (discharge point) not enough detail provided on assessment of ground conditions. There needs to be stronger requirement for geotechnical input and hydrological screening. Standard 1 is quite weak, it needs more technical direction.

The SAB is concerned about 30% betterment on pre-developed sites as SAB are sometimes not involved in sign off and this is reliant on the sewerage undertaker's acceptance. It should be Greenfield or what a sewer can accept.

The SAB does not accept RWH as they assume the tank is full and is unlikely to be properly maintained (which is risk). The SAB considers RWH irrelevant for SAB approval, primarily as there's insufficient demand and not maintained.

Water Quality – needs more evidence, sampling and monitoring to support better outcomes.

Standards on amenity and biodiversity – the requirement to 'maximise' opportunities is a "blessing and a curse". This is subject to the SAB discretion. These Standards need to be supported by local plan policy to improve the outcomes.

There's a challenge that the six Standards are not considered in their entirety. There's a misconception that each Standard can be delivered in isolation. However, a holistic approach that delivers against all 6 Standards in some way needs to be presented by the applicant.

The Interception criteria is something that needs to be focussed on more. However, this is often very dependent on the ability to infiltrate.

Guidance needs to be strengthened if it describes the process adequately. The council uses *The SuDS Manual* (Woods Ballard *et al.*, 2015) and *Building Regulations Part H*⁵. There's a reliance on *The SuDS Manual*. They use BRE 365 for infiltration as it is more conservative.

Standard 1 (discharge) requires Local Plan policy to strengthen the technical requirements in the FAQs.

Standard 2 (hydraulics) is supported by a raft of guidance and tools, like the *SuDS Manual*, *Rainfall runoff management for developments*⁶, *Interim Code of Practice for SuDS*⁷.

Standards 3, 4 and 5 (WQ, amenity and biodiversity) require strengthening from the local authority to enable greater prescription. However, the SAB still requires greater flexibility.

⁵ <https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h>

⁶ <https://www.gov.uk/government/publications/rainfall-runoff-management-for-developments>

⁷ https://www.susdrain.org/files/resources/other-guidance/nswg_icop_for_suds_0704.pdf

A.5 Flintshire County Council

Organisation(s)	Flintshire County Council
Date	21/07/20
Attendance	Ruairi Barry

Number of applications

As a SAB, Flintshire has received 13 full applications. They've received hundreds of planning applications, but the SAB applications have not been received. Ruairi highlighted the challenge of the misalignment of planning and SAB approval and 'silo working'. The challenge is that the SAB and LLFA is not the statutory consultee to the planners – but local arrangements would be useful to join up SAB and planning functions. The council has probably received around a 100 pre-application requests.

Type of development

Many of the full applications they have received so far are non-adoptable.

Flintshire has some development pressure, so the pre-applications received are mixed. Many of the larger developments are at pre-application stages and the Council is working with the likes of Redrow and Amwell.

It is difficult to receive a full application as technical appraisal requires full detailed drawings. At the moment full applications do not include enough information for approval. The pre-application process is very helpful as it enables modification at planning and site design

Aspirations

There is a North Wales SuDS Group that have just started work on developing a SuDS for adoption guidance (Arup are contracted and this is managed by Ruairi). This should provide clarity on the process, what's required for applicants, including design criteria and practical elements.

The Council is trying to encourage architects and drainage consultants to work together.

Ruairi would like pre-application to be the equivalent of approval in principle with the aspiration to obtain enough detail to be certain the drainage submissions can be delivered on site and that the submissions are robust. The SAB officer could then review planning as a full submission as part of development control where an adequately detailed SuDS drainage strategy is provided. Linking planning and SAB approval would save the Council and the developer money,

The SAB is keen to obtain multiple benefits aligned with green infrastructure, but they are pragmatic in terms of the components that may be required for sites, i.e. some pipes may be required to link a house to a swale.

Standards 4 and 5 (amenity and biodiversity) the requirement to 'maximise' opportunities helps deliver more than just attenuation and include vegetation, primarily as part of the drainage system. However, Ruairi recognises that with a single property discharging to ground through infiltration is likely to comply with Standards 1, 2, 3 and 6 (discharge, hydraulic control, water quality and construction and maintenance). But it is unlikely to deliver 4 and 5 (amenity and biodiversity).

Assessing performance against Principles and Standards

Standard 1 (discharge destination) is relatively clear, and the hierarchy is also useful to work through. However, it's recognised that with a single property it may be necessary to infiltrate if this is possible using the BRE infiltration test.

Rainwater harvesting is easy to rule out on cost effectiveness ground, as the SAB do not consider storage volumes of RWH. The SAB accepts very simple rainwater butts for all properties may help with the Interception of 5mm.

Standard 2 (hydraulic control) – fairly straightforward to assess. Still undecided on the practical limit of discharge – i.e. 5 l/s/ha, or 1 l/s/ha (dependent on blockage). Greenfield rate up to 1:100 year return period plus climate change and volume is 1:100 year return period plus climate change is required. The SAB is not comfortable evaluating the hydraulic reports for Interception but they are comfortable pursuing deemed to comply.

A proforma for the hydrology will also be proposed – with coversheet to summarise. Keen to avoid huge drainage reports and debates about C_v values and rainfall models used. FSR rainfall presents less volume to manage than FEH, they will suggest if FSR is used the hydrograph should be upscaled. It's too easy for engineers to manipulate models favourably.

The SAB may consider the deemed to comply for small scale developments as a proportionate approach to achieve a runoff of 55 mm/hour (with climate change). Uncertain whether Interception will deliver for amenity and biodiversity.

Standard 3 (water quality) the SAB will be using a proforma as part of the guidance being developed by Arup which will be based on the Simple Index Approach.

Standard 4 (Amenity) possible to obtain gains on larger (housing estate) sites which is primarily dependent on scale.

Standard 5 (Biodiversity) very similar to amenity and often considered together.

There is no support within the SAB around landscape and amenity – approval is based on the drainage engineer. With biodiversity there is a focus on the plant species and this may be included in the forthcoming guidance.

The SAB application stays with the drainage engineer and unfortunately SuDS and planning approval remain separate activities.

Standard 6 (designing for construction and maintenance) the proposed proforma is useful for presenting information. Even if the SuDS are not being adopted by the SAB it is useful for the client to understand the maintenance schedule and what remediation may be required with full consideration of activity schedules and bill of quantities.

There is a variability of information provided on maintenance and maintenance requirements. The proforma sets requirements on the information that needs to be presented.

How effective have the Standards been in delivering good outcomes?

Standard 2 – it is difficult for applicants and others to fully understand complex attenuation, volumetric requirements and Long Term Storage. Hydraulics tend to be managed through flow control, volume storage Q_{MED} and multiple outlets. There is a struggle to obtain hydraulic control on small constrained sites.

The wording of 'maximise' for standards 4 and 5 on amenity and biodiversity enable flexibility for more difficult sites where site context is important.

Challenges and constraints

Accommodating housing growth is a challenge. The approach to planning and housing delivery means there are often constraints of housing density versus surface SuDS components.

A significant challenge is the costing and valuation of land where the developer often makes assumptions on layout design and yield/plot which is often dependent on land take. Some developers do accept the additional value of SuDS to the development.

There also the perception of risk and overcoming the challenge of perceptions around Health and Safety.

The SuDS approach, utilising landscape drainage is also relatively new for the industry – as a result there are challenges around competency.

What enables/facilitates delivery?

The SAB remains reliant on existing SuDS guidance, particularly *The SuDS Manual* (Woods Ballard *et al.*, 2015)

There is no local planning policy. There is a focus on the additionality of the biodiversity and amenity provided by the SuDS scheme, they need to be separated from the overall planning application.

Applicants need to consider the interactions between SuDS and planning and the potential synergies in terms of delivery. The SAB is happy to utilise Public Open Space for flood storage, but need to ensure the planners are content with that approach.

Potential changes to the Principles or Standards

The Standards are okay, however, the greatest challenge is around implementation and eventual enforcement. Setting commuted sums is difficult as the lifetime of the development to be considered is 100 years (suggested by Tan 15) and the amounts to be provided by developers are substantial. There is difficulty in obtaining a sustainable source of financing.

Some of the schemes will be adopted by the SAB with the practicalities delivered by a management company.

There is a challenge around setting 30% betterment for flows and volumes for pre-developed sites as this may not require attenuation.

It was suggested that the legislation/Standards should be phased and focussed on major developments first.

A.6 Swansea Council

Organisation(s)	Swansea Council
Date	20/07/20
Attendance	Dan McAulay

Number of applications

As a SAB Swansea has received 12 full applications and had 26 pre-application discussions.

Type of development

There have been a mixed range of applications for agriculture, commercial and residential buildings. The majority are for small minor residential developments - mainly 1 or 2 houses.

Aspirations

Dan was looking for SuDS/SAB regulations to encourage greener, more natural SuDS to enable a progression from underground attenuation tanks and flow control devices.

Natural, surface systems are easier to understand and the requirements for maintenance are easier to manage. Within the SAB area there is also a challenge of missed connections and surface SuDS components enable easier identification.

Assessing performance against Principles and Standards

S1 (discharge destination) is relatively easy to assess, although infiltration within the area is variable. This Standard can be easily assessed. Efficient rainwater harvesting is unachievable unless yield/demand analysis is undertaken. Welsh Water will not consider a connection to their sewers unless the applicant has undertaken infiltration testing.

It is challenging to allow a discharge to highway sewer as the highways drainage infrastructure is of variable quality.

S2 (hydraulic control) is relatively easy to assess. The delivery of Interception is primarily based on a deemed to comply approach with the encouragement of green features, permeable paving, rain gardens. The SAB influences the approach taken by the applicant.

Delivery of Interception through deemed to comply through green SuDS components are promoted through the delivery of Amenity and Biodiversity Standards.

A large number of small sites infiltrate as this reduces the connection charges – but also assists with the delivery of Interception.

S3 (water quality) is very dependent on the site context. Smaller sites will tend to use the deemed to comply approach in terms of component selection. Larger sites will be encouraged to use the SIA, only two sites have used the SIA approach and it worked quite well.

S4 (Amenity) – is very subjective, which can be good and bad.

S5 (biodiversity) ecologists are consulted with regards to planting of rain gardens, the SAB can assess soil makeup and depth. However, the ecologist primarily looks at the inclusion of invasive species. The Council is developing a draft Green Space Factor Tool which is based on an approach from Berlin used 20 years ago (Penny Griffith has progressed it). This is for application in the City Centre and a flagship biophilic building.

Easiest way to achieve S4 and S5 on smaller houses is the incorporation of rainwater planters and rain gardens in the front, or rear garden.

The standards for S2, S3, S4 and S5 are all linked.

S6 (designing for construction) is very dependent on the CIRIA SuDS Manual with the provision of maintenance schedules for SuDS components. The Parks department will undertake the maintenance of components and are happy to use the SuDS Manual requirements.

How effective have the Standards been in delivering good outcomes?

S1 is strong. However, highway drainage destination is challenging. As the quality of the infrastructure is variable.

S2 and S3 are effective and workable. Designers are not struggling too much as they are using a deemed to comply approach with rain gardens and rain planters. The SAB influences the applicants approach in terms of meeting requirements.

S4 provides the SAB with a lot of scope. This encourages applicants to consider green features. Amenity and biodiversity (S5) are inextricably linked.

The interaction between the SAB and applicant is quite direct with the SAB influencing the design to facilitate SAB approval.

There are some relevant policies in the Local Development Plan for biodiversity. The SAB using Policy RP4 on flood risk that required the use of SuDS.

Challenges and constraints

There is little awareness that there's a requirement for applicants to go through SAB approval. If they are aware of the requirement to go through SAB, many smaller builders are not aware, or understand the Standards. For the smaller builders the SAB provides more support and assists with the designs.

The SAB together with the applicant can find an approach to deliver the SuDS standards on small sites. Two house applications are relatively easy, they opt for small infiltration systems, sometimes including rills and rain gardens. The larger sites have requirements for density which is based on their financial model and the Local Development Plan requirements.

There are also constraints introduced by Welsh Water. As they will not allow SuDS within their easements, primarily over their infrastructure. Having a SuDS component over their infrastructure restricts their access and poses challenges in terms of excavation and reinstatement.

The challenge is around identifying a sustainable funding model for the adoption. Identifying funding under S6 normally means commuted sums are required for adoption (for 2, or more households) is challenging.

What enables/facilitates delivery?

The SAB is reliant on the CIRIA SuDS Manual. They will eventually develop a local design document with Highways department based on what they approve and accept linked to S38 mechanisms. Highways are resistant to SuDS in Swansea and introduce new requirements not understood (7m attenuation basin).

Potential changes to the Principles or Standards

Remove the option to discharge to highway drainage from S1, but retain it as a discretionary option in the guidance on the basis of a survey of the receiving drainage condition.

The biggest challenge is how the adoption can be funded. There is a lack of consistency for calculating commuted sum. The Welsh Government was going to develop a consistent

spreadsheet for costing commuted sums. Some SABs are using S38 agreements, and some SABs are using Parks Guidance on adoption and funding.

A.7 Vale of Glamorgan Council

Organisation(s)	Vale of Glamorgan Council
Date	14/07/20
Attendance	Clive Moon

Number of applications

The SAB has received 32 full applications. 19 have been approved, 3 refused, 1 withdrawn the remaining are ongoing.

Type of development

There have been no major housing developments passed to SAB approval. 9 minor residential developments, a number of play areas, car parks and educational developments have been received. Not every extension being undertaken is going through SAB.

Aspirations

Prior to the SAB process being introduced the SAB knew they could obtain outcomes associated with S1 (discharge point) and S2 (hydraulics), but they were struggling to achieve blue-green infrastructure and multiple benefits to help deliver high-quality schemes that weren't pipe-to-pond.

With the introduction of the statutory Standards and being a statutory consultee they now have more influence which together with a good relationship with their planning colleagues they can deliver better outcomes.

The aspiration with the introduction of the statutory Standards was to have greater influence and obtain greater certainty and clarity on the requirements for multiple benefits. The SAB is realistic about the requirements for biodiversity and amenity and the level of SAB discretion and negotiation required.

Assessing performance against Principles and Standards

The SAB takes a common sense approach to assessing the Principles and Standards.

S1 and S2 – the SAB takes an overview of the submission, depending the scale and type of development. They would prefer a cohesive drainage strategy that provides an overview of the drainage approach. However, there's a tendency for applicants to use MicroDrainage from the outset and rely on the reports from the software package.

The SAB looks for early indicators relating to S1, supporting information and Interception as these tend to be quantitative and are relatively easier to assess.

S3 (water quality) – tends to be reliant on the compliance with Interception. They also look at the use of SuDS components in terms of deemed to comply and will use the Simple Index Approach (SIA) if it's a risky site. Applicants are encouraged to use the SIA approach at pre-application stage.

The SAB is finding it is necessary to educate those going through planning application that SAB approval is still required. The SAB approval process is not a simple tick box exercise. Every site is specific and the experience and knowledge of consultants varies.

Progressing through the Standards requires a common sense approach, with a review of maintenance to understand the level of risk offsite.

The Council around 2012 was adopting surface SuDS features like basins, they also adopted permeable paving. They were positive with regards to the direction of travel of statutory Standards.

The SAB is having to use their own discretion for smaller sites. There's possibly a requirement to strengthen the Standards for amenity and biodiversity with appropriate local policies. Is it going to be appropriate for a single household that would use a soakaway to stipulate that they should include a rain garden? The impact on statutory biodiversity was considered by ecology colleagues to have a limited impact.

The SAB requires Interception even when being discharged to a combined sewer as they are keen to reduce the load on the sewers.

Infiltration within the Council's areas is very variable and the SAB is insistent on infiltration tests at the specific disposal point. Normally discussions at pre-application focus on infiltration and assessing potential constraints.

The SABs focus is primarily on the delivery of Interception, as more likely than not this will assist with the delivery of multiple benefits and S3, S4 and S5 Standards. Many applicants suggest that they have complied with S1 and S2 but their consideration to Interception is deficient. The SAB will point out the potential impacts of the runoff on the watercourse that need to be managed. The approach can be discretionary based on the receiving watercourse's sensitivity and risk.

It is still challenging to assess modelling of Interception using MicroDrainage.

The SAB would prefer applicants to use the deemed to comply approach to deliver Interception as this is helpful in achieving the wider benefits and maximising opportunities on the site. The quality of submissions relating to Interception is still quite poor.

The SAB team and Vale of Glamorgan has a broad range of disciplines and skillsets to assess the submissions and under negotiation. It is down to the consultant to provide assurances around design and they need to provide evidence and justification which often be challenging. The liability for failures of schemes still remains with the consultant providing the drainage submission.

When asked about the application of all six Welsh Standards Clive suggested that S4 and S5 can be subjective and more discretionary. S6 can be negotiable and the applicant will need to justify whether the SuDS components can be effectively maintained.

The primary objective is hydraulics and the delivery of Interception. The approach needs to be pragmatic, consider the context of the site and what can be achieved.

How effective have the Principles and Standards been in delivering outcomes?

Hydraulics is relatively straightforward.

Water quality evaluation primarily utilises SIA. However, there is uncertainty about the appropriate sizing of a component to provide adequate treatment. S3 (water quality) requires the consideration of the catchment area and runoff flows being received by features. Flood risk remains the priority.

The SAB encourages applicants to consider the receptors and requirements to promote Interception and ask applicant to consider, or demonstrate how proprietary treatment delivers Interception.

Challenges and constraints

The SAB has not received many major residential developments.

The development and planning process still creates challenges with developers not considering drainage and SuDS early enough in the process. Many developers/consultants will then try and retrofit the SuDS around a pre-existing development layout.

There can be challenges with dealing with the interfaces of other asset owners/managers. For example Welsh Water have been concerned about SuDS components (permeable paving, rain gardens) over their infrastructure.

Smaller residential sites require a proportionate approach and an assessment of the context. It's questionable whether a meaningful impact can be delivered on single plot schemes, particularly for biodiversity.

What enables/facilitates delivery?

The SAB has a clear pre-application process. However, the SAB is yet to implement local policies to specify requirements.

The SAB insists that applicants achieved Greenfield runoff then move on to approaches for betterment. It may also be useful to have local policy presenting preferences for amenity and biodiversity.

Clive suggested that the Standards provide consistency. However, there may be local interpretations and requirements for local discretion to be used. Context is likely to have an impact on what outcomes can be achieved and the viability of developments. Clive suggested that if the Standards had too onerous requirements for biodiversity this could cause problems.

Potential changes to the Principles or Standards

The Standards are a good starting position. There is sufficient flexibility in the Standards as well.

Clive suggested that with more applications and more examples they may be able to provide more detailed responses to the questions.

He suggested it might be useful for further clarity around biodiversity, what could be a good measure of compliance, designated species type, or broader biodiversity objectives?

The guidance would benefit from clarification; there is some uncertainty whether the SAB has powers to undertake some of the guidance requirements - around commuted sums, using S.111.