

Implementing a Sustainable Planning Framework for Drainage

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Summary

This paper describes Dwr Cymru Welsh Water's (DCWW) implementation of a new, integrated process for sustainable drainage planning. The project consultant appointed by DCWW to deliver the project was Halcrow, supported by Clear.

The goal was to develop a process that supported sustainable and holistic decision making, informing delivery and planning through an understanding of risk. A key element in achieving this was to build on WRC's SRM5 (Sewerage Risk Management) framework by developing and implementing detailed business processes and procedures to enable implementation of the risk based approach.

The specification provides an integrated, robust approach to drainage planning, drawing and improving on best practice within DCWW and elsewhere. It is fully aligned with the iterative SRM 5 risk-based planning process and with the CMPCF (Capital Maintenance Planning Common Framework) and incorporates DCWW priorities on surface water reduction. Implementation enables DCWW to achieve current obligations and also support robust future business cases to identify investment priorities for the next price review and beyond. There is a special focus on surface water reduction and ensuring strategic objectives are addressed within the business planning cycle.



Drivers

The development of DCWW's integrated risk-based approach to sustainable drainage planning has been influenced by a number of drivers. These can be summarized:

1. A desire to implement a more robust and consistent risk based approach
2. A desire to become a leading company by benchmarking and implementing industry good practice
3. The need to embrace the 'outcomes' based thinking and the core principles enshrined in the emerging Environment Agency and Ofwat strategic planning framework for drainage

The starting point was SRM5 – the current evolution of the WRC Sewer Rehabilitation Manual – and is the foundation stone for the DCWW specification for developing an SDP (sustainable drainage plan).

Adoption of the iterative risk based approach identified in the SRM5 was seen as an important step in embedding risk management methodology into the organization, and the supply chain as well as encouraging effective behaviours and supporting a level of effort commensurate with the potential risk.

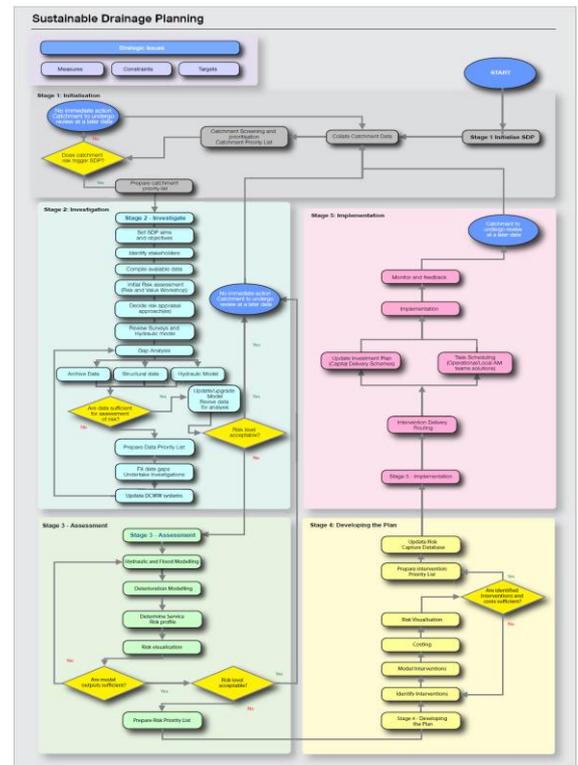
However, it was also acknowledged that to make SRM5 an effective tool for delivering SDPs and managing risks, the SRM5 would need to be developed into a detailed working specification, supported by processes and tools that would enable integration into DCWW's structure, existing processes, suppliers and systems. Recognition of these challenges was the

starting point for a 12 month journey that would deliver a live specification, processes and tools and draw on pilot studies and continuous improvement to shape the current approach.

SRM5

SRM5 is an important document because it highlights the risk based planning concepts that are identified in the CMPCF and promotes their use for all aspects of wastewater investment planning and asset management. The key elements of the SRM5 approach are: i) **Initialize** – involving preparation and initial planning activities ii) **Investigation** – gathering of existing data and evidence and preliminary risk assessment is carried out iii) **Assessment** – where the detailed risk analysis is undertaken if required iv) **Development** – where intervention options are scopes and assessed and v) **Implementation** – where schemes are delivered and feedback provided.

However, the challenge for DCWW was to elaborate on SRM5, modify and integrate it into existing planning and delivery processes and procedures.



Developing process and procedure

Significant effort has gone into developing, testing and improving the specification. This has required mapping out the processes and understanding how they interface with other internal processes, defining the interfaces and providing detailed procedures that describe how the process should be implemented. At the same time, DCWW have encouraged stakeholder workshops to raise awareness and gain buy-in to the new specification. Resources have been identified, responsibilities defined and delivery partners and external stakeholders consulted on the evolving approach.

The newly developed approach is being successfully integrated into the business as usual and a feedback and continuous improvement mechanism is in place to capture learning and enable regular updates to the SDP specification. The specification itself has been developed as an interactive electronic document, to be placed centrally and made available to internal and external users.

Live process, risk visualization and the Service Measure Framework

Live process

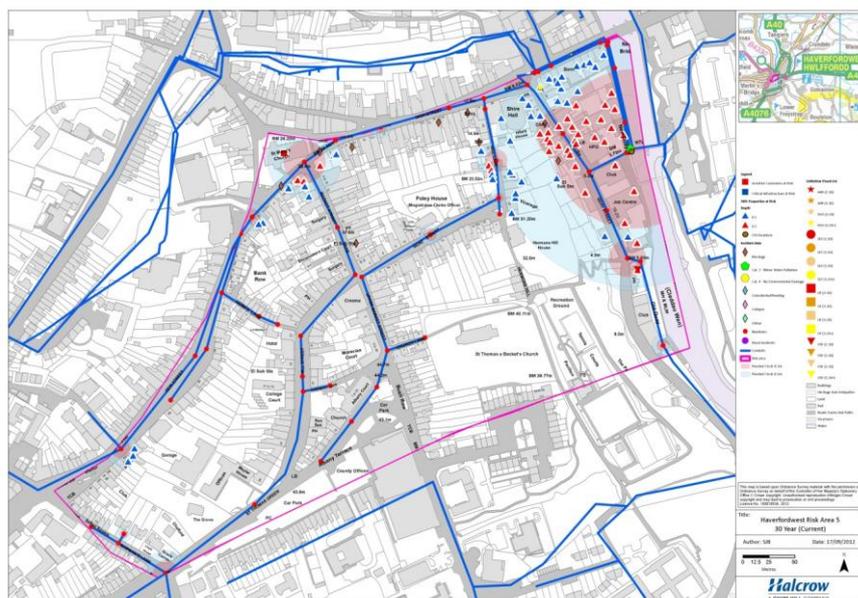
This means that the SDP is accessible, visible and being developed in an iterative manner. As information is gathered, a more detailed picture of the issues, constraints, risks and needs will evolve. For some SDPs, the initial investigation may reveal that the current and expected future risks are relatively low; provided that the SDP owner believes that the data is sufficient to support the level of risk analysis, this SDP would be placed in a low priority position and held in a 'stack' subject to future review. The status will be reviewed periodically and this may trigger more detailed investigation, as informed by the new risk estimate. High risk SDPs would be prioritized and depending on a number of factors could be subject to extensive investigation, modeling and scoped for intervention analysis.

The actual SDP is a collection of reports, spreadsheet analysis, data, and risk assessment information plus a summary to highlight the actual SDP status. A tracker spreadsheet was developed to enable management of this information (which can be quite extensive for SDPs where detailed appraisal is required) which informs the user as to the status and priority of the SDP. This tracker provides links to all key data and documentation.

Risk visualization

Options for mapping, analyzing and presenting risk information have been developed. These are not definitive and service providers are currently reviewing the nature of these risk maps; the ongoing pilot studies will potentially result in further enhancements to this process. Figure 1 shows one of the risk maps that were generated for the Haverford West pilot study area.

Figure 1 Example visualization of risk events



This was developed iteratively and the purpose is to inform discussions and raise awareness of possible hazards, incidents and risks in the catchment area. The map shows recorded incidents and receptors, as well as enabling potential flood influence zones to be identified, taking into account change factors such as growth, creep, climate change.

Undoubtedly these can be elaborated further, looking at additional event return periods and using LiDAR data to estimate flood routes. However, the purpose of these maps is to inform debate and focus the analysis so there is a balance struck between pragmatism and modeling sophistication.

Planned developments will include thematic mapping to show area level risk – this will facilitate comparison of risk across the company and support the investment planning process.

Service Measure Framework

One of the key enablers for this project has been the implementation of a service measure framework, developed by ICS Consulting. The SMF is a service delivery based set of KPIs that are direct measures of risk to customers and the environment. Their key attributes are that they are scaleable and comparable. They can be monetized and used to make a direct comparison of risk for different assets and impacts and in different areas. Furthermore, the specific service measures used to assess wastewater asset risks can be compared, in monetary value terms, with those used for clean water assets. This flexibility supports effective risk based decision making and a consistent and comparable basis for investment planning.

Managing surface water

Surface water elimination and reduction (SWEAR), is seen as an integral choice to be considered as part of all wastewater investment schemes. A number of potential benefits of exploring and implementing a SWEAR strategy have been identified and these include:

1. SWEAR provides an effective, adaptable and sustainable approach to surface water drainage
2. SWEAR considers opportunities for the elimination or reduction of surface water flows without causing detriment elsewhere in the catchment
3. SWEAR can achieve: water quantity and quality improvements; amenity and biodiversity enhancement; effective water resource management; and reduced carbon emissions
4. SWEAR encourages engagement with others within Welsh Water's business, with other stakeholders and with customers

In recognition of the potential benefits, SWEAR policy has been 'hardwired' into the SDP specification, so as to ensure opportunities for these sustainable solutions are not being missed. Ultimately, whether or not a SWEAR scheme is viable will

depend upon consideration of cost, benefit and customer preferences, but the SDP specification will help ensure these options have been explored in a systematic and appropriate manner.

Finally, it is worth noting that a challenge for the industry will be developing a basis for estimating the wider amenity and societal benefits associated with SWEAR solutions.

The emerging Environment Agency and Ofwat Drainage Strategy Framework (DSF)

The SDP specification and approach is has been influenced and is responding to the emerging Environment Agency and Ofwat Drainage Strategy Framework (DSF). The regulators want to encourage holistic and sustainable planning, closer working with customers, care for the environment and production of a long term strategy. Identified principles for this framework include:

- Partnership focussed approach
- Clarity on data available and uncertainty of data
- A risk- based approach – in both the approach to planning and in the resulting plan
- Long-term, whole-life cost and benefit appraisal
- Continued review – a live process of update, review and improvement
- Strategic - line of sight between strategy and AMP investment plans (these 2 must be connected)

What will this mean for companies like DCWW?

The SDP specification; use of a Service Measure Framework and active community engagement through the SWEAR program are certainly driving the approach in this direction of travel. Of particular note is the emphasis on integration as part of the risk-based approach and taking a long term view of change factors such as growth, creep, climate and asset deterioration. In addition, the focus on SWEAR is encouraging community engagement and the SDP methodology is designed to be 'live' and subject to continuous improvement.

However, this project and the regulators' framework represent the first steps and the initial thinking for a long term journey and a significant change in how companies will be regulated.



The move to an outcomes based approach will require full integration of the planning process and the stakeholder engagement process. There is an expectation that companies will accept new challenges and a long term vision to achieve the outcomes required by customers and the environment.

For example, a suggested potential outcome would be the '**achievement of blue flag status for all beaches by 2025**'. There are a number of things that need to happen to enable this:

1. Implementation of a process of customer consultation to establish desire and willingness to pay and consideration of affordability
2. Fully integrated risk based planning, enabling whole life costs and benefits to be assessed
3. Established working relationships with all catchment stakeholders and methodology and incentives for adopting a collective approach and allocating costs and benefits
4. Preparation of a narrative that connects assets to outcomes, based on an inclusive and affordable strategy for sustainable drainage