



Standards Programme

Topic A. Wastewater – sewerage

1. Details of objectives.

Long Term Objectives for Topic – see Project Plan below for details	Responsible Water UK Policy Advisory Group and contact
A.1: To ensure any lateral drain or sewer is built in such a way that water companies can cost effectively manage those assets.	Environment - Sarah Mukherjee
A.2: To ensure water companies are able to specify and purchase components and services of suitable performance.	Environment - Sarah Mukherjee Economic Regulation and Market Reform - James Bullock
A.3: To identify good practice in areas where current practice is divergent.	Environment - Sarah Mukherjee

Topic	Wastewater – sewerage	Sub-topics	Sewers, Laterals Drains, Design, Civil Engineering works, Asset Condition Rehabilitation, Infiltration / Exfiltration, Flow / measurement, Gravity/Vacuum/Pressure, Maintenance, Products, CSO and screens, SUDs
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The topic can be divided into the following key stages:

Drainage Area Planning	Infiltration & exfiltration, condition inspection, flow measurement, hydraulic and quality modelling
Rehabilitation Planning	Asset condition, rehabilitation techniques and selection
Design including product selection	Design methods, product performance/ testing/ selection, design criteria, mechanical & electrical, civil
Construction	Civil engineering works, mechanical & electrical works, installation
Operational maintenance	Jetting, tree roots removal, product/ selection, mechanical & electrical maintenance

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Current UK practice

Planning

- Asset Condition/Sewerage Rehabilitation – SRM with wide company variations in practice.
- BS EN 752:2008
- Condition inspection – Manual for Sewer Condition Classification (MSCC) widely used and more convergence is being seen in company practice. MSCC v4 is a national implementation of BS EN 13508-2.
- Hydraulic modelling – WaPUG Code of Practice and individual company practice
- Quality modelling – Urban Pollution Management Manual, WaPUG Guide and individual company practice, wide variations
- Infiltration & exfiltration – currently based on case-by-case basis, needs reviewing
- Flow measurement – sewer flow survey standards have been overtaken by individual company practice
- Plastics pipes products standards for rehabilitation being converted to ISO standards. Might force representation to ISO and CEN committees.
- SUDs – Interim Code of Practice for Sustainable Drainage Systems to be superseded by National Sustainable Drainage Standards.

Design

- Design criteria (civil, M&E) - Sewers for Adoption and Civil Engineering Specification for the Water Industry for sewers, Building Regulations for drains and private sewers
- Design methods – Wallingford procedure plus EN 1295 for structural design
- Products – Water Industry, British & European Standards with mixture of 3rd party approvals and individual water company assessment. Inspection chambers (plastic) – and structured wall pipe standards being developed in CEN
- Eurocodes – EN 1990 to EN 1999

Construction

- Sewers for Adoption and Civil Engineering Specification for the Water Industry for sewers, plus EN 1610 which isn't widely used
- Bedding materials – current specification WIS 4-01-02

Operational maintenance

- Guide to sewerage operational practices
- Water Companies manuals of sewerage with widely diverging methods
- Individual company practice and approval of products

Current issues and pressures

- PR14 - climate change and rainfall modelling.
- Standards for sewerage inset appointments.
- Rehabilitation/renovation standards.
- Effect on sewer flows of reductions in water use.
- Defra want 'integrated urban surface water management' – adoption of SUDS, water courses etc. Unified standards for public and private sewers.
- Effect of Defra guidance to Local Authorities on Surface Water Management Plans.

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- EU – water framework directive – content with respect to sewerage and threats need assessing.
- EU prosecution of the UK for Whitburn and London CSO spills.
- Other countries – Germany, Austria, Switzerland have laws to monitor and control infiltration and exfiltration. France want performance standards for sewer systems and Key Performance Indicators
- Majority of sewers in UK are constructed by developers against Sewers for Adoption at developers' expense.
- Effect of demography changes on sewer redundancy.
- Standards for separation of foul and surface water.
- Contractors, particularly in the Benelux region, work across National borders and wish for common standards to aid consistency of practice.
- Bedding materials specification does not reflect current practice. Research/ benchmarking needed on modern practices including use of recycled materials.
- Standards for intelligent manholes.
- Sediment corrosion in rising mains needs to be addressed.
- Climate Change – removal of surface water.
- Increased risk of flooding including sea water in sewers due to tidal floods.
- The Flood and Water Management Bill and Flood Risk Regulations 2009.
- Macerators – Swedish delegation at TC165 meeting in November 2004 supported the Swedish proposal to prepare an EN on kitchen waste disposal units, this was rejected by all other delegations present at the meeting.
- Fats, oil and grease (FOG).
- Sewers for Adoption 6th Edition – sewers and tree roots.
- European Procurement Directives
- WIMES – see wastewater treatment topic. WIMES apply to larger equipment and are not applicable to small pumping stations being considered in private sewers transfer (including associated new construction standards).
- Production of WISs for small pumping stations (in progress).
- Cross contamination between sewage and greywater – need for pipe marking and skilled installers.
- Transfer of private sewers.
- Sewer layouts –estate design (sewers up to boundary)

Long-term Objectives

Objective A.1: To ensure any lateral drain or sewer is built in such a way that water companies can cost effectively manages those assets.

Protect the current design, construction and operational performance by ensuring:

- A common set of functional requirements in European Standards that meet the requirements of sewerage undertakers;
- Commonality between Sewers for Adoption and Building Regulations;
- UK practice is encompassed in guidance documents;
- Guidance documents reflect best/modern practice and apply across water industry where appropriate/possible.

Objective A.2: To ensure water companies are able to specify and purchase components and services of suitable performance

Protect the current product performance by ensuring:

- Standards for sewerage products reflect functional requirements;

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- Policing of development of product standards to reflect functional requirements (rather than having detailed input to each standard);
- Clear guidance on specifying to standards is available;
- UK Best Practice documents are aligned with guidance;
- Suitable briefing of procurement staff on guidance.

Objective A.3: To identify good practice in areas where current practice is divergent

Benchmark UK and European company practice to identify a best approach for the future for:

- Excessive infiltration and exfiltration
- Asset Condition and inspection
- Hydraulic and quality modelling
- The applicability of SUDS
- Flooding risk

Note: Objectives could be extended in future to cover planning for growth.

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2. Project plan to deliver each long-term objective:

Objective/ Project	Potential collaborators	Topic Advisor, PAG and Contact	Project Activity	Specific activity in 2011/12 including Water UK Networks
Objective A.1: To ensure any lateral drain or sewer is built in such a way that water companies can cost effectively manage those assets.				
A.1.1 Common set of functional requirements in European Standards.		Don Ridgers Environment Sarah Mukherjee	Attend CEN TC 165 (Wastewater Engineering) + BSI Committee B/505. Reps – Don Ridgers and Haydn White	Influence new work items & scope plus early warning of activities.
		Don Ridgers Environment Sarah Mukherjee	Attend CEN TC 165/WG22 (Drainage outside buildings) Reps – Don Ridgers, Nick Orman and Tony Griffiths Attend BSI Committee B/505/22. Reps – Don Ridgers and Nick Orman	Organise workshop to ensure industry understanding of functional requirements (include reps on product committees). Review need for more detailed European or National Standards to support EN752.
		Don Ridgers Environment Sarah Mukherjee	Attend CEN TC 165/WG13 (Renovation & repair of drains and sewers) Rep – Tony Griffiths Provide input to BSI Committee B/505/13/P1 and B/505/13/P2	Ensure policy on rehabilitation techniques & selections are consistent with functional requirements.
		Don Ridgers Environment Sarah Mukherjee	Attend CEN TC 165/WG12 (Design) Rep – Don Ridgers Provide input to BSI Committee B/505/12/P1 (Revision of EN 1253-1 and EN 1253-2).	Influence design methodology to support functional requirements and UK Water Industry guidance.

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Objective/ Project	Potential collaborators	Topic Advisor, PAG and Contact	Project Activity	Specific activity in 2011/12 including Water UK Networks
A.1.2 Ensure commonality between SFA, Building Regulations and European Standards to promote UK practice.	CLG, Defra, HBF	Don Ridgers Environment Sarah Mukherjee	Sewers for Adoption 8 th Edition forum to allow amendments and monitoring of compliance.	Continue to meet with HBF. Seek to produce alternative to SfA to fit with new adoption arrangements that arise from the Defra private sewers initiative. Ensure that BS EN 752:2008 is used as basis for common standards.
		Don Ridgers Environment Sarah Mukherjee	Attend DEFRA Private Sewer Steering Group.	Communication of activity into Water UK Standards Programme.
		Don Ridgers Environment Sarah Mukherjee	Building Regulations (Part H Drains and Sewers).	Watching brief through Sewerage Infrastructure Network . Ensure that BS EN 752:2008 is used as basis for any common standards. (<i>Adequate representation will be needed if revision group is set up</i>).
		Don Ridgers Environment Sarah Mukherjee	Standards for adoption of pumping stations.	Produce WISs for package pumping stations suitable for adoption. Consider producing BS or EN for design of larger pumping stations.
		Don Ridgers Environment Sarah Mukherjee	Construction of sewers. Note: No active panels of B/505/10.	Consider Membership of B/505/10C when new projects are initiated.

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Objective/ Project	Potential collaborators	Topic Advisor, PAG and Contact	Project Activity	Specific activity in 2011/12 including Water UK Networks
		Don Ridgers Environment Sarah Mukherjee	Terminology	Continue membership of BSI Committee B/505/30/P1 and CEN TC165 WG30 (Terminology - wastewater engineering) to ensure consistent terminology across all European Standards.
A.1.3 UK practice is encompassed in guidance documents.		Don Ridgers Environment Sarah Mukherjee	Water Industry Specifications/ Information and Guidance notes.	Review WIS + IGNs to ensure currency and alignment with best practice. Identify need for updates or background work.
				Update IGN and WIS for bedding and backfill
A.1.4 Guidance documents reflect best/ modern practice and apply across water industry where appropriate/possible.		Don Ridgers Environment Sarah Mukherjee	WIMES Group	Communication of WIMES Group activity into Water UK Standards Programme Provide input into pumping stations adoption standards (see above).
Objective A.2: To ensure water companies are able to specify and purchase components and services of suitable performance				
A.2.1 Functional requirements for sewerage products and services reflect general functional requirements.	SBWWI Product manufacturers	Don Ridgers Environment Sarah Mukherjee	Ensure UK views are included in combined EN 476, EN773 and EN1293. Attend BSI Committee B/505/1/P5 (UK input to rev prEN476, prEN773 and prEN1293). Consider need to attend CEN TC 165/WG1. Rep – Don Ridgers	A review EN476, EN773 and EN1293 is complete and a revised EN476 consolidating all these standards is currently at formal vote.

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Objective/ Project	Potential collaborators	Topic Advisor, PAG and Contact	Project Activity	Specific activity in 2011/12 including Water UK Networks
A.2.2 Policing of development of product and service standards to reflect functional requirements.	SBWWI Product manufacturers	Don Ridgers Environment Sarah Mukherjee	Attend CEN TC 165/WG1 (Wastewater Engineering: General Requirements for pipes and fittings) + British Standard B/505/1 (relevant panels). Note – Rep required Attend CEN TC 155/WG17 (rehabilitation systems) and PRI/88/3Rep – Charles Ashdown Attend BSI Committee B/505/4/P1 (manholes, revision of EN 124) Rep – Ian Whittaker Provide input to BSI Committee B/505/1/P6 (potential EN for drainage and sewage pipe couplings), BSI Committee B/505/04/P5 (Proposed BS Fabricated access covers), Rep – Paul Millard Provide input to BSI Committee B/505/04/P6 (Revision of EN 13101 Manhole steps).	Review extent to which existing standards and drafts meet functional requirements. Identify way forward.
A.2.3 Clear guidance on specifying to standards is available.	Product manufacturers OGC	Environment Sarah Mukherjee	-	Work with product manufacturers to prepare clear guidance document.
A.2.4 UK Best Practice documents are aligned with guidance.	HBF Defra (procurement department).	Don Ridgers Environment Sarah Mukherjee	-	Review key documents (SfA, SRM, CESWI) to ensure alignment with 2.3 above

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Objective/ Project	Potential collaborators	Topic Advisor, PAG and Contact	Project Activity	Specific activity in 2011/12 including Water UK Networks
				Identify actions for amendment or revision (ongoing). SfA is being reviewed as part of the private sewers initiative. Review of CESWI in normal review cycle
A.2.5 Suitable briefing of procurement staff on guidance.	OGC	Brian Spark Economic Regulation and Market Reform James Bullock	-	Procurement network to brief network members on guidance.
Objective A.3: To identify good practice in areas where current practice is divergent.				
A.3.1 Identify the best practice for dealing with infiltration and exfiltration.		Don Ridgers Environment Sarah Mukherjee	-	Activity allocated to Sewerage Infrastructure Network : Review current approaches in UK and overseas. Prepare briefing paper identifying way forward.
A.3.2 Benchmark UK and European company practice to identify a best approach for asset condition and inspection.		Don Ridgers Environment Sarah Mukherjee	-	Activity allocated to Sewerage Infrastructure Network : Review current approaches in UK and Europe. Prepare briefing paper identifying way forward.
A.3.3 Benchmark UK and European company practice to identify a best approach for hydraulic and quality modelling.		Don Ridgers Environment Sarah Mukherjee		Activity allocated to Sewerage Infrastructure Network : Review current approaches in UK and Europe. Prepare briefing paper identifying way forward. To be considered in possible hydraulic calculation standard from CEN/TC165/WG22

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Objective/ Project	Potential collaborators	Topic Advisor, PAG and Contact	Project Activity	Specific activity in 2011/12 including Water UK Networks
A.3.4 Benchmark UK and European practice to identify a best approach to the applicability of SUDS.		Don Ridgers Environment Sarah Mukherjee	Water UK SUDS Network to undertake any work.	Activity allocated to SUDS Network : Prepare briefing paper identifying way forward taking into account legal responsibilities of water industry. Needs to take into account National Sustainable Drainage Standards. Note: – WIS for Geo- cellular Underground SUD Storage Systems in progress. Communication of activity into Water UK Standards Programme. Water UK position on SUDS would be a key input into Note 2 below.
A.3.5 Contribute to UK exploration of flooding alleviation and watercourse control.		Don Ridgers Environment Sarah Mukherjee	Attend BSI CB/501 – Flood risk and watercourses Rep – Haydn White Attend CB/501/0-/01 – Flood mitigation for new development – Code Of Practice Rep – Rod Wilkinson	Contribute as necessary to development of the Code of Practice.

Notes:

1. CEN/TC165/WG22 is setting its agenda for the next 5 years.
2. Amendment of EN13508-2 is nearly complete and will necessitate minor updates to Manual of Sewer Condition Classification
3. Also on the WG22 agenda is a decision on whether more detailed standards are to be developed for the design of sewer systems in support of EN752, which contains the functional requirements, and design principles. Decisions will be required on whether to let others drive any detailed standards or whether the UK should drive them. WG22 is to produce feasibility studies for standards on Design of pumping stations, Structural assessment of defective sewers and Hydraulic calculation in 2010. A water industry view is required on the principle of this.

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4. It is not clear whether the Water UK networks were aware of the actions that were placed on them (e.g. 3.1, 3.2, 3.3 and 3.4). Ensure information is passed on to Water UK Networks

5. It may not be necessary to have a rep on every group that was mentioned. Some can be effectively monitored by those who get key papers through membership of the policy committees.