

CIWEM Chartered Institution of
Water and Environmental
Management

Urban Drainage Group

Competency Framework Support Document

Version 01



Urban Drainage Group

Competency Framework Support Document 2019.

www.ciwem.org/groups/udg

Technical enquiries

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The Competency Framework Support Document has been written to be used in conjunction with the UDG Competency Framework to provide a linkage between this document and the CIWEM Mandatory Competences which need to be demonstrated to achieve professional membership (C.WEM) of the Institution.

The Competency Framework and this Support Document are issued for guidance in good faith following industry consultation. CIWEM cannot accept responsibility for consequences arising from its application. It is intended that the Competency Framework Support Document will undergo periodic review to reflect good practice and new technologies as they mature.

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1 INTRODUCTION

Supporting the professional development of members of the urban drainage community is a key aspect of the CIWEM Urban Drainage Group's (UDG) strategy.

To provide an indication of the broad range of skills that were emerging within the group, the UDG Competency Framework was developed in 2015. This outlined a series of broad knowledge groups detailing individual competencies which might be expected of people working within the industry. Over the years this has been broadly adopted into training programmes, role requirements and job descriptions.

The aim of this document is to use these groups and competencies and demonstrate how someone working within the urban drainage sector and using the UDG Competency Framework to support their development of knowledge and experience.

1.1 Competency Framework Development

The first draft of the Wastewater Planners User Group (WaPUG) Competency Framework was released in September 2006. The vision for this initial iteration of the framework was to "provide guidance for an accredited programme of assessment, education and training.

Since 2006 there has been significant development in the approaches and environment that we as urban drainage professionals are operating in. This has not just been influenced by technological advances, but the significant environmental impact of periods of extreme weather in the late 2000's which have had a dramatic influence on the legislative and political framework within which we work.

In addition to this in 2010 the original Wastewater Planners User Group (WaPUG) became the a CIWEM Special Interest Group. The UDG now has the additional role of supporting urban drainage professionals in understanding the requirements of CIWEM Membership and the requirements of attainment of becoming a Chartered Water and Environment Manager (C.WEM), whilst continuing to promote best practice and innovation within the Urban Drainage sector.

The UDG Competency Framework was then re-written in 2015 to expand on the original document scope, but also enhancing the requirement to provide understanding to members of the community how the skills they have developed demonstrate the mandatory competencies required to achieve CIWEM Membership and C.WEM status.

1.2 Benefits of Membership and Chartered Status

Becoming a CIWEM member and C.WEM gives you a globally-recognised demonstration of your professionalism and technical abilities. At CIWEM and within the UDG we champion highly qualified water and environmental managers, engineers and scientists who are recognised throughout the world for their professional expertise and conduct.

The UDG has a global reach and we recognise that supporting the development of competency has a benefit not just to individuals, but for the companies involved within the sector and the industry as a whole. How all these benefits marry together is illustrated within Figure 1-1 Benefits of Chartered Status Venn Diagram.



Figure 1-1 Benefits of Chartered Status Venn Diagram

1.3 Terminology and language

The Competency Framework uses language and terms predominantly related to the United Kingdom and Ireland, although the skills and sectors outlined will be relevant for use internationally.

1.4 Target audience

The target audience is urban drainage practitioners who are actively involved in aspects of the urban drainage cycle and are looking to forward their professional development and achieve professional status with CIWEM.

2 CIWEM Mandatory Competences

The CIWEM Mandatory competencies that are used to assess the suitability of individual candidates for the various levels of membership. The competencies have been refined over time to enable candidates to better target their personal compliance.

The competences now are split into five grouped areas:

- A Competencies – Existing and emerging factors influencing environmental and water issues
- B Competencies – Planning, implementation and evaluation of work
- C Competencies – Safe and effective working practices
- D Competencies – Communication and professional ethics
- E Competencies – Professional development

This breakdown will enable individual candidates to demonstrate an understanding of the industry they are working in, show through examples how they have undertaken work within the sector, ensure that environmental sustainability, health and safety and quality are at the heart of working practices and demonstrate a commitment to professional standards and development.

Within each of these competency areas are up to four specific competences which draw on aspects of the group, enabling a candidate's ability within the field to be demonstrated. The full list of competences is shown in Table 3.1 below.

Table 2-1 CIWEM Mandatory Competencies.

A	Existing and Emerging Factors Influencing Environmental and Water Issues
A1	Knowledge of wider environmental issues and trends (which may be related to, but not constrained, by your area of expertise)
A2	Ability to develop strategies or plans to address changes in your sector
B	Planning, implementation and evaluation of work
B1	Ability to analyse and evaluate environmental and/or water problems
B2	Ability to solve problems by identifying, developing and evaluating options
B3	Ability to initiate, implement and manage change
B4	Ability to plan and implement solutions and monitor their continuing performance
C	Safe and effective working practices
C1	Ability to manage resources effectively and efficiently
C2	Understanding, promotion and application of Health and Safety (H&S)
C3	Your contribution to sustainability
C4	Understanding, promotion and application of quality enhancement and Quality assurance (QA)

D	Communication and professional ethics
D1	Ability to communicate in English
D2	Work professionally, ethically and comply with relevant codes of conduct
E	Professional Development
E1	Demonstrate continuing professional development
E2	Discuss your commitment to CIWEM

2.1 UDG Competency Framework

The original WaPUG Competency Framework was designed to enable individuals to assess their level of knowledge against a series of competences. Some guidance was supplied to support the individual to assess their individual level (AKEB) and some 'typical' score distributions for types of role within the sector.

The revision of the framework in 2015 was designed to expand the original competences where the sector has moved in that decade and to align the competences more to the CIWEM Mandatory Competencies, thus providing a UDG focussed support document for moving towards a full level of CIWEM Membership and C.WEM status.

The revised Framework has 10 Knowledge Groups with specific competences identified in each. Table 4.1 below highlights the high-level framework map.

Table 2-2 UDG Competency Map.

Knowledge Group	Competence
Legislative Framework and Funding	Legislation
	Regulation
	Funding and Investment
	Finance
	Change Management and Future Challenges
Stakeholder Engagement	Stakeholders & Customers
	Impacts & Interactions
	Public Relations
	Response
	Stakeholder Interactions
Planning, Risk & Serviceability	Sewerage Risk Management
	Risk Assessment & Planning
	Customer Impacts
	Environmental Impacts
	Asset Deterioration

Knowledge Group	Competence
	Model Concepts
	Levels of Service
Integrated Urban Drainage	Major and Minor Systems
	Hydrology
	SuDS
	Exceedance
	Hydraulics
Data Collection and Management	Asset Management
	Sources of Information
	Data Collection
	Long Term Monitoring
Hydraulic Modelling	1D Model Building
	Hydraulic Verification
	Water Quality Verification
	2D Modelling
	IUD Modelling
	Risk Modelling
	Model Use
	Feasibility Assessment
Engineering Design and Construction	Design Standards & C of P (CDM)
	Knowledge of Materials
	Construction Techniques and Build-ability
	Operability
	Capital and Operational Solutions
	Carbon Footprint
Health & Safety, Environmental and Quality.	Concepts and Legislation
	Risk Assessment
	Confined Spaces
	Traffic
	COSHH
	Public Health
	Sustainability
Management	Line Management
	Project Management

Knowledge Group	Competence
	Programming
	Contracts
General Skills	Technical Software
	GIS
	Report Writing
	Communication Skills
	History of the Urban Drainage Group
	History of the Water Industry
	Maths

The following sections of the document provide a breakdown of the information gathered within the community to support skill and knowledge development against the CIWEM Mandatory Competencies and how the UDG Competencies can be used to demonstrate tasks and knowledge which are relevant and can help demonstrate competence.

3 Competence Alignment and Examples

3.1 A1 Knowledge of wider environmental issues and trends (which may be related to, but not constrained, by your area of expertise)

Knowledge Group	Competences	Comments
Legislative Framework & Funding	All	This knowledge group fully supports this competence
Stakeholder Engagement	All	Understanding how we are evolving to deliver integrated catchment management and understanding the different pressures of stakeholders.
General Skills	History of Water Industry	Understanding how the Water Industry has developed to present day
	History of Urban Drainage Group	Also supports commitment to CIWEM
UDG Experience	<ul style="list-style-type: none"> • Understand Legislative framework surrounding Urban Drainage Planning <ul style="list-style-type: none"> ◦ UWWTD, EU Bathing Waters, EU Shellfish Waters, Water Framework Directive Water Act • Floods and Water Management Act – Implications for Stakeholders + Pitt Review • HOT TOPICS –SuDS (particularly ownership), Flooding, Urban Creep, Climate Change, Customer Education, Growth, • Presentations at Industry Events, CIWEM, UDG, PIG, ICE, Innovyze • Lecturing at Universities or STEM outreach • Read WEM Magazine, NCE, WET News, WWT etc • Understand the Funding of Water Companies – Regulators, Price Review (PR) Business Planning, Consumer Council for Water • Director General Measures (DG) e.g. DG5 Flooding from Sewers • Outcomes and ODI, Performance Commitments • Long Term Monitoring – H&S implications • Remote Monitoring • Long Term Water Use – Future Trends - Code for Sustainable Homes • Online Resources • Change of Modelling approaches to suit 	
Additional Guidance	<ul style="list-style-type: none"> • Further study; Attendance at institute lectures and training events; Active research; Job specific learning, as necessary; Reading • Consider a response to consultations (see regulators' websites); • Keep up to date with regulators; Set up a community of practice; Be involved in research and development; • Application of new policy; Application of new software – Innovyze Workshops / Beta Testing • Education (degree course); <p>Describe how you obtained your personal knowledge of environmental or water issues. For those with water related experience – it is important to refer, if appropriate to the linking of water quality, air quality and land use with public health aspects.</p> <p>Investigate the historical development of the environmental sector Refer to knowledge of the “environment” gained from publications (magazines, periodicals and technical papers).</p>	

	<p>Investigate and assess regulatory factors, including legal and financial which govern the environmental sector.</p> <p>Select a topic to research, e.g. flooding, and look at it from the public's perspective and maybe that of a private organisation or pressure group within the environmental sector.</p> <p>Show that you understand the legislation, directives and regulations, including legal and financial, which may impact on your own employer.</p> <p>Assess the main potential impact of emerging technologies and organisational changes and managerial issues affecting environmental and water affairs in the next five years and identify opportunities to apply this knowledge to existing products and processes.</p>
Example Experience	<p>After the end of the civil war in 2009, in 2010 the Sri Lankan government, with the funding from Asian Development Bank, has started a project to supply water to northern Sri Lanka, from a reservoir which was fed by the river Kanakarayan aru. However, the hydrology of the ungauged river basin, like the others in the Island, is not very well understood due to lack of quality data. As part of my MSc thesis, I have used a constant parameter approach, a method that uses parameters from a hydraulically similar adjacent catchment as defined in Prediction of Ungauged Basin (PUB) initiative to estimate the catchment parameters and through which, estimated the water availability in the future. The future estimation used the UK Met office's simulated precipitation and temperature data for HadCM3 for AIB climate change scenario for years 1960 to 2099.</p> <p>The Iranamadu reservoir is the major source of water for irrigation around the catchment; the dam was to be raised by few meters to store more water that is required for the water supply. However, the research has found that the surface water availability for Period S (Year 2070 to 2099) is to dwindle to nearly half of the current resource (289 mcm). This is alarming considering the current irrigation demand alone exceeds the water availability; therefore, the sustainability of the water supply project is questioned. It is high time, the developing countries put major emphasise on monitoring their water resources to understand and thereby, effectively plan for future water demand.</p>

3.2 A2 Ability to develop strategies or plans to address changes in your sector

Knowledge Group	Competences	Comments
Legislative Framework and Funding	All	This knowledge group fully supports this competence
Stakeholder Engagement	All	This knowledge group fully supports this competence
Planning, Risk and Serviceability	All	This knowledge group fully supports this competence
Integrated Urban Drainage	All	This knowledge group fully supports this competence
Feasibility and Catchment Strategy	All	This knowledge group fully supports this competence
UDG Experience	<p>Corporate</p> <ul style="list-style-type: none"> • Moving to Risk Based Catchment Management Plans – Catchment Strategy and DWMPs • Best Approach for your need – SMP, DAP, Strategic, Local Flooding Solutions, UID, UPM, SWMP, SUDS etc 	

	<ul style="list-style-type: none"> • Stakeholder Engagement – Understanding the needs of all parties – Flooding and pollution • Flood Routing – Understanding of wider interactions within the urban water environment – 2D modelling applications such as asset failure consequence modelling, assessing effectiveness of surface water management schemes proposed by Local Authorities/TFRCC, modelling SUDS solutions, integrated catchment modelling • Specification Development for internal or external purposes • Tool Development – Flood Risk, Blockage Hot Spot, Corporate Decision Support Tools, Asset Condition Modelling, Bespoke tools for company use, Sediment transport and deposition impact modelling • Internal Training Programme Support and Development • Software developments • Asset Management initiatives – Asset health, Performance measures, Asset resilience, Asset condition assessment <p>Involvement in UKWIR projects</p> <p>Personal</p> <ul style="list-style-type: none"> • Modelling Team Leader – passing on knowledge – training courses – improving efficiency, continuity and best practice • Development of tools specific to your team (for example, Macros in MS Excel to refine reporting of sewer flooding from other causes such as blockages, collapses and any other drivers; Tools to automate tasks such as drawing subcatchments;), • Develop guidance methodology and / or propose improvements for a work stream specific to your team <p>Research into a specific area of interest and present a business case to the company – e.g. Refinement of Environmental policy, climate change modelling, propose amendments to current work practice in relation to upcoming legislative changes</p>
<p>Additional Guidance</p>	<p>Identify changes or development in the sector in which you work, or related sectors, and evaluate your findings</p> <p>Select items that would have the greatest effect on your business in terms of workload or revenue</p> <p>From these items develop possible ways of dealing with these changes and how they could be adopted in your organisation</p> <p>Identify any gaps in your proposal above and show where you feel additional investigation needs to be carried out</p> <p>Outline the progress you have made to ensure that environmental issues or water use factors are included in your personal development plan in your workplace, highlighting how cultural changes in your organisation may have impacted on such aspects.</p> <p>those changes and developments requiring formal and detailed review.</p> <p>Select items that would have the greatest effect on your business in terms of workload or revenue.</p> <p>Appraise and agree alternative strategies and options. Prepare and agree a planning framework for dealing with changes or developments.</p> <p>Identify any gaps in your existing relevant information and implement appropriate programmes of research to satisfy them.</p>
<p>Example Experience</p>	<p>Good understanding of multi-system interaction was crucial for addressing the flooding in my catchment; therefore, it was agreed that the system will be represented through software, InfoWorks ICM. As this was a</p>

	<p>new software, I have developed a strategy to address this change on a personal level, to minimise the impact of change in terms of cost, quality and delivery time through the following key concepts:</p> <ul style="list-style-type: none"> - Prepare: becoming aware of personal attitude towards change, emotions and their impact on project - Learning: knowledge gaining on the use of the new application and finding ways to tackle negative emotions like frustrations, through talking to colleagues- Monitoring: Talking to colleagues and PM to understand the issues, and the progress of the modelling; creating procedures for similar projects in future <p>I used a similar approach when implementing a change due to a government initiative of BIM (Building Information Modelling) Level 2 compliance for all information exchange of all government projects, at an organisational level. I was tasked with implementing Black and Veatch's strategy of ensuring its common data environment (CDE) and the professionals working are in the manner proscribed in the standards for information exchange especially PAS1192-2. I devised a plan with the agreement of my supervisor that included the following:</p> <ul style="list-style-type: none"> - Prepare: Personal knowledge on BIM process and the use of CDE; identifying stakeholders and their knowledge assessment; pre-empt their concerns and address roadblocks; - Learning / communication: plan and provide trainings, which are aligned to the teams' needs; raise awareness of available resources - Monitoring: on-going support; track issues raised to see common patterns and address them; willingness to accept feedback and able to change / justify <p>Implementation of this plan been positive with more productivity achieved and all projects are being worked in PAS compliance CDE.</p>
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3.3 B1 Ability to analyse and evaluate environmental and/or water problems

Knowledge Group	Competences	Comments
Planning, Risk and Serviceability	All	This knowledge group fully supports this competence
Integrated Urban Drainage	All	This knowledge group fully supports this competence
Data Collection and Management	All	This knowledge group fully supports this competence
Hydraulic Modelling	All	This knowledge group fully supports this competence
Feasibility and Catchment Strategy	All	This knowledge group fully supports this competence
UDG Experience		<ul style="list-style-type: none"> • AMP Cycle – Investment Planning and constraints – Targeting Efficiency • Integrated Catchment Management – Multi-stakeholders within the legislation of the FWMA • Sewerage Projects driven by regulatory targets – environmental and financial <ul style="list-style-type: none"> ○ Different water companies use different approaches

	<ul style="list-style-type: none"> ○ Exceedance & Risk – Simplified horizontal projection to full 2D analysis • Planning Data collection to support investigations – Catchment knowledge is key • Understanding of service measures – Impact on customers & Customer Willingness to Pay • Sustainable Solutions v Traditional approaches • Carbon Accounting – Which is priority – carbon, CAPEX or Environmental benefit? • Levels of Service and a Risk Based approach – best use of available funds • Stakeholder interactions – different needs, assets, levels of service and budgets • Sewers for Adoption – constraints on developers – Code for Sustainable Homes • First Time Sewerage Applications – Cost Benefit Analysis
Additional Guidance	<p>Analyse a brief for a task ensuring that both the customer and public will be served by the results. Look at why client needs and public requirements may differ</p> <p>Undertake surveys, mapping or other investigations for a project and appraise the methodology and outcome</p> <p>Examine the historical, social and ecological context of a project and any changes that might result should the work be carried out</p> <p>Consider the regulatory constraints or relevant directives that might influence any recommendations you make</p> <p>Look at the economic or financial implications of the work you are doing</p> <p>Evaluate any external resources needed to complete the task</p> <p>Desk Studies and Presentations to the Client of different options.</p> <p>Describe a project, experimental or research plan you have formulated or have been involved in producing and how these meet or match the requirements of stakeholders, making reference to relevant legislation, codes of practices and customary, historical aspects that have to be respected.</p> <p>Formulate and agree a brief that meets client, user and community requirements, ensuring recognition for the complexities of the potential project; client needs; user and community requirements.</p> <p>Look at why client needs and the public requirements may differ.</p> <p>Undertake surveys, mapping or other investigations for a project and appraise the methodology and outcome.</p> <p>Investigate the historical, social, ecological and environmental factors relating to the natural and built environment.</p> <p>Consider the regulatory constraints or relevant directives that might influence any recommendations you may make governing site utilisation and development.</p> <p>Look at the economic or financial implications of the work you are doing.</p> <p>Investigate problems to identify their causes and the factors which will influence the evaluation of potential solutions.</p>
Example Experience	<p>As a solution engineer I have undertaken several investigations to assess potential flooding and pollution issues on the network. These have included:</p> <ul style="list-style-type: none"> • Scheme Name (£kk Value) <p>The problem which required addressing was flooding, infiltration, pollution & operational issues that required a solution to resolve and were raised as a capital scheme.</p>

	<p>I was appointed as the engineer to lead on the scheme, with an overall budget of X to take the project through the feasibility process. Infiltration is a known problem within this region and as such best practice and guidance was sought by me from other engineers undertaking schemes with similar drivers. Key factors that were considered included potential sources of infiltration, for example groundwater / overland flow influences. As such condition of the pipe was a crucial factor, alongside understanding of overland flow patterns with the potential for other sources of water to contribute to the network. Knowledge of these factors was key when planning surveys and this was looked at with a view to realistic options to reduce the risk for customers. This for example involved comparing the benefits of options such as flood grouting and lining techniques, against the traditional concrete storage solutions that have previously been unsuccessfully implanted in the past. This was key to this project as a previous scheme undertaken within the village had made use of online storage only for issues to continue following the completion of the scheme.</p> <p>Sourcing this information about the catchment was crucial so I developed a Stakeholder Management Plan as per available guidance. There were a variety of stakeholders including customers, customer service, CCW, colleagues, operations, County Highways and the LLFA. I communicated with these different parties via email, phone calls and face to face meetings as and where this was deemed appropriate. Surveys were planned and targeted at times of the year where historical knowledge gained from my initial investigation determined infiltration would be at its highest levels. This included flow monitoring, contributing area / asset surveys alongside CCTV investigation. These reduced the risk for any unknown infiltration for example to put a potential solution at risk. I also subjected this to a peer review and consulted with the Client PM prior to handing over the scheme. This ensured neutrality as it gave someone with no previous knowledge of the scheme itself to provide insight and critique alongside recommend any further surveys / different approaches that may be beneficial to the scheme going forward.</p>
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3.4 B2 Ability to solve problems by identifying, developing and evaluating options

Knowledge Group	Competences	Comments
Planning, Risk and Serviceability	All	This knowledge group fully supports this competence
Integrated Urban Drainage	All	This knowledge group fully supports this competence
Data Collection and Management	All	This knowledge group fully supports this competence
Hydraulic Modelling	All	This knowledge group fully supports this competence

Feasibility and Catchment Strategy	All	This knowledge group fully supports this competence
Engineering Design and Construction	All	This knowledge group fully supports this competence
UDG Experience		<ul style="list-style-type: none"> • Developing a Catchment Intervention strategy – time based, and risk based • Notional solutions developed through the SMP/DAP process • Flood Relief Schemes – taking a notional scheme through to detailed design • Consideration of approaches – Traditional Storage, SuDS, Surface Water removal • CSO Screen design/retrofit • Control Systems (e.g. RTC) and long-term monitoring • Operational & Maintenance Strategy • Asset Strategy Plans – Lifecycle Assessments • Deterioration Modelling and targeted investment strategy • Long Term monitoring - Asset planning and operational performance assessment Stakeholder Engagement Plan
Additional Guidance		Using creative and original thought where appropriate, plan the solution process to meet customer needs. Develop and test alternative project solutions to meet: Specifications; Performance requirements; reliability; environmental maintainability; production; construction, installation and commissioning requirements; training needs; Present and agree recommendations and solutions. Prepare detailed solutions and comply with statutory controls. Look at a plan and highlight your personal contribution where problems or gaps have been identified Consider whether your various suggestions delivered a 'best fit' outcome Check your solution has met the regulatory and legislative requirements and customer expectations Feasibility Reports Cost Benefit Analysis Did you formulate novel approaches – How and why were these needed. Were new management, engineering, scientific principles involved. How did you assess the validity of these approaches and methods of working? Look at a plan and highlight your personal contributions where problems or gaps have been identified. Consider whether your various suggestions delivered a „best fit“ outcome. Check your solution
Example Experience		My approach to solving water and environmental problems was demonstrated during a Surface Water Management Plan. First, I identified a long-list of options for reducing the flood risk posed by a surface water flow path. I then undertook a site visit to refine the list based on local constraints such as underground services or incompatible land use. The options I short-listed included: <ul style="list-style-type: none"> • Increased pumping at a surface water pumping station • Private Rainwater Harvesting (RWH)

	<ul style="list-style-type: none"> Private and public urban greening; including rain gardens, swales and tree pits. <p>I used a hydraulic model to test effectiveness of the short-list. This identified that each of the options was effective during low return period storms, but the volume of water during a 1 in 100-year event exceeded all the options tested.</p> <p>I used Cost Benefit Analysis (CBA) to understand which option provided the most benefit as a ratio of its cost. This found increased pumping and RWH were the most beneficial options. I communicated the results via a summary sheet that explained the location, type, cost and benefit of the proposed options. I also presented these findings at a workshop with the project stakeholders. My recommendation to the steering group was to adopt the RWH option, due to the additional benefit of providing a water resource in an area which is water stressed. It was also avoided the increasing carbon costs of surface water pumping.</p> <p>I worked with a City Council to identify a pilot catchment for SuDS retrofit. This included a GIS analysis of opportunity and constraints to SuDS. In collaboration with a steering group of project partners, I selected a catchment with the strongest need for SuDS in terms of water quality, flood risk and unconsented Combined Sewer Overflows. I then went on to design options for retrofit SuDS. I used the CIRIAs Benefit of SuDS tool to quantify the amenity, social, educational and environmental benefits of the interventions. This provided me the evidence to recommend a pond feature which balanced surface water sewer flows, rather than the alternatives, infiltration basin or chain of swale features. I also recommended that the final chose of SuDS should be in collaboration with the residents to promote their buy in.</p>
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3.5 B3 Ability to initiate, implement and manage change

Knowledge Group	Competences	Comments
Legislative Framework and Funding	All	This knowledge group fully supports this competence
Feasibility and Catchment Strategy	Risk Based Interventions	Understand how the risk-based approach allows prioritisation of risks, but also allows the linking of problems to deliver strategic solutions.
UDG Experience	<ul style="list-style-type: none"> Resource Management – Staff and Sub-contractors – co-ordinating production of outputs. Contractor Management – Understanding role in the procurement and management of data collection Change Management – Team Structure, Delivery Structure, Specification Changes, Project Changes, Programme Changes – Response to these Implement procedures – Develop tools to drive efficiency Stakeholder Engagement Plan Investment Strategy – Timeframe and interventions – Capital or operational System Optimisation Bid documents, Framework Submissions, Client Feedback. Liability 	

	<ul style="list-style-type: none"> • Conditions of Contract – NEC options A-F, early warnings, compensation events (NEC = New Engineering Contract). • Performance against KPI – Managing the Client, Project Brief, Deadlines, Programme <p>Performance Management of employees</p>
<p>Additional Guidance</p>	<p>How have you developed a plan for a task, monitored its development, and made any necessary revisions during its implementation?</p> <p>Fitting into a new team;</p> <p>Ensuring minimum disruption whilst implementing a new system;</p> <p>Controlling a budget; Develop plan in close liaison with the client;</p> <p>Demonstrate the ability to deal with the unexpected.</p> <p>Co-ordinate the production of documents, systems and services</p> <p>Prepare procurement, contract and production documents to plan and control development.</p> <p>Describe precisely how you were able to manage change – was this new in your organisation or was it down to external and not necessarily stakeholder influences. Give details and the framework that underpins the management direction.</p> <p>How have you developed a plan for a task, monitored its development and made any necessary revisions during its implementation?</p> <p>Understand and abide by the legal liabilities and risks in contractual relationships with clients on behalf of your employer.</p>
<p>Example Experience</p>	<p>As an assistant modeller working on a modelling project, I had to plan and implement actions to address risks associated with change in work circumstances due to a senior colleague leaving the organisation and lack of data to complete a model. Failure to address these would have delayed the project and affected its quality. I took this as a challenge to ensure the project was delivered in time and to the client's satisfaction. As the client was contractually responsible for the data, I carried-out extensive research to prove that the data were missing and written a report with a recommendation of completing a partially calibrated model with an ability to be updated in future. As such, the project was completed as per the revised scope to the client satisfaction.</p> <p>Later in my career, as part of my organisation's cost saving strategy, I was tasked with implementing the migration of data from one system to another. One of my key responsibilities was minimising disruptions to live projects, which would have resulted in project delays and frustration within the teams. I have successfully implemented my change management plan, which included the following activities:</p> <ul style="list-style-type: none"> • Stakeholder Identification: Brainstorming exercise with the migration team to take note of everyone: project managers (PM), team members, the IT professionals, the organisation etc. • Communication: Through number of ways including regular emails of progress update; face to face and remote meetings; providing training on the use of new system highlighting the differences and similarities highlighting available resources. • Monitoring: as the migration was done in phases it was essential to track to ensure if a project is migrated and if not, to understand why and resolve any issues quickly while updating the PM and the

	<p>relevant teams. Also, ongoing support the project team with the use of new system. Lesson learnt during this migration is noted to avoid similar issues in future.</p> <p>Successful implementation of this meant significant cost saving to organisation</p>
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3.6 B4 Ability to plan and implement solutions and monitor their continuing performance

Knowledge Group	Competences	Comments
Planning, Risk and Serviceability	Asset Deterioration	Understanding future risk through deterioration analysis.
Integrated Urban Drainage	Exceedance	Understanding how assets might fail and managing any future risk through exceedance analysis on the surface.
Data Collection and Management	Asset Management	Understand how an asset management strategy is developed allowing risk-based prioritisation and then monitoring of critical locations
Engineering Design and Construction	All	Ensuring that future H&S of the operation of assets is key for sage future performance.
Health and Safety, Environmental and Quality	All	Emphasise the need for long term monitors to be sited appropriately
UDG Experience	<p>Working on longer term asset strategies.</p> <p>Building prioritisation processes for catchment investigation allowing future change to influence investment decisions.</p> <p>EDM Planning and analysis</p> <p>Long term catchment monitoring strategy and analysis.</p> <p>Long term planning and scenario testing using models.</p>	
Additional Guidance	<p>Plan the operation of systems and services to meet performance objectives.</p> <p>Control systems and services to meet given requirements.</p> <p>Develop maintenance plans to meet required outputs and take necessary action to achieve performance.</p> <p>Monitor and evaluate the performance of systems and services against predetermined standards.</p> <p>Identify and diagnose the causes of unacceptable variations in performance.</p> <p>What strategy have you developed to ensure a task will be achieved and comply with all the appropriate standards QA, H&S or environmental regulations</p> <p>Look at how you drew up a plan for monitoring and maintaining a system or service. Examine the results including cost, resource management etc.</p> <p>Look at the outputs from the task and any analysis you may have done giving recommendations to avoid the repeat of any that were unacceptable</p> <p>Setting up a new team</p> <p>Client Feedback Forms</p> <p>The extent to which you have the executive power to plan, implement and control the active management of the planning and implementation phases of projects. NOTE: These projects do not have to be major</p>	

	<p>developments or research items with significant, (up to six figures) capital expenditure horizons.</p> <p>What strategy have you developed to ensure a task will be achieved and comply with all the appropriate standards QA, H&S or environmental regulations?</p> <p>Look at how you drew up a plan for monitoring and maintaining a system or services against pre-determined standards. Examine results including costs, resources management etc.</p> <p>Look at the outputs from the task and any analysis you may have done giving recommendations to avoid the repeat of any that were unacceptable.</p> <p>Identify any risks which may compromise the outcome.</p>
Example Experience	<p>I have undertaken an analysis of previously unconfirmed sewage capacity issues at a treatment works and a tank that serves the dual functionality of a balancing tank in dry conditions and of a storm tank in rainfall. I used available construction drawings to create a hydraulic model representing the treatment works and ran computer simulations with an array of different rainfall events as well as dry conditions to provide guidance on how the capacity of the tank is utilised. One of the key issues was that future growth in the area would have an impact on the volume of the tank dedicated to balancing flows, and therefore decrease the storm storage before spill. This in turn would have an impact on whether the storage on site was meeting Environment Agency consent. Further complications arose because increasing rainfall also saw predicted increases in discharges in the network upstream of the works, at sites which had not been verified. Neither the timescale nor financial means was available for a flow survey to improve the hydraulic model at these locations, but asset surveys were undertaken to increase the confidence of model performance. Following the analysis, it was recommended that storage capacity be improved at the treatment works as well as a key pumping station upstream which had not previously been considered for capacity issues. It was also recommended that telemetry data be installed in the tank to ensure that performance is monitored.</p>

3.7 C1 Ability to manage resources effectively and efficiently

Knowledge Group	Competences	Comments
Legislative Framework and Funding	Business Planning	Supporting corporate growth and/or delivery strategy. Work towards Price Reviews, annual business plans.
Management	All	Project, programme and financial management. Resource planning and management including line management.
UDG Experience		Deliver urban drainage projects to time, budget and financial targets using available skills and resources where required. Framework management of projects delivered for a specific client Managing performance of contractors on site to achieve data collection outcomes. Line/Team management including

Additional Guidance	<p>Report on the performance of project aspects to which you are contributing. Look at how you can help your company to deploy, monitor, control and organise people and resources to achieve a planned outcome</p> <p>Controlling a budget;</p> <p>Consider staff in other offices; Plan staff allocation ahead of time;</p> <p>Keep a check of budget, particularly in relation to staff time;</p> <p>How you contribute to improving and /or maintaining the reputation and effectiveness of your employer or specific department within your employer's organisation, in the widest possible manner. This must include professional, technical and financial parameters of control.</p> <p>Report on the performance of project aspects to which you are contributing. Look at how you can help your company to deploy, monitor, control and organise people and resources to achieve a planned outcome (within budgetary and time constraints), and that corrective action is taken as required.</p> <p>Secure effective resource allocation for activities and projects.</p> <p>Implement procedures for the development of human resources to secure project delivery by demonstrating an ability to:</p> <ul style="list-style-type: none"> - Recognise, interpret and apply appropriate employment regulations; - Carry out appropriate selection and recruitment (e.g. for a project) - Undertake appropriate negotiation, conflict resolution and counselling where necessary; - Identify and review for effectiveness both work-place and off-site training needs and provision for skills extension; - Enhance performance and further staff abilities to adapt to new technology and changing requirements - Develop, implement, maintain and enhance effective team working relationships; giving clear and accurate instructions; identifying collective goals and responsibilities; promoting and typifying appropriate professional convictions and attitudes; promoting the exchange of ideas; recognising the competence of others; - Be aware of and contribute, where possible, to corporate marketing strategies and the competitiveness/effectiveness of your organisation. <p>Using appreciation of your employer's commercial position as appropriate, report on the performance of project aspects to which you are contributing.</p>
Example Experience	<p>I previously undertook an operational role for a water company working as a Senior Network Technician. I responsible for the running a third of the county (Approx. 190k people). Within this catchment I took ownership of customer service issues, built relationships with the EA, Local Councils & Highway Authorities alongside facilitating delivery of operational works. At times I worked under pressure during periods of high work volume, due to customer, regulatory and company standards but maintained my professionalism and helped the county to meet deadlines and deliver its targets.</p> <p>I approved and helped prioritise operational works within my catchment in line with strict budgets liaising with colleagues, contract partners and my manager. In addition to this I was the lead Network Technician in the county with regards to the Proactive Works Programme (PWP), I managed and audited approval of work to tight budgets and timescales. I was responsible for planning and managing workload for the Network</p>

	<p>Technicians within my catchment and was also part of a county standby rota operating 24/7 365 days of the year.</p> <p>As part of my role whilst on standby I deputised for the Network Manager and was on call for the county during the floods which hit Worcestershire in 2014. Out of hours I was responsible for overseeing operations at 4 different over-pumping locations (circa 25 pumps) across the county, in conjunction with other stakeholders such as the Environment Agency and Highway Authorities, alongside the day to day running of county. At times I had to make challenging decisions, take ownership of them dedicating the appropriate resource deemed appropriate to the particular issue. Following such decisions, I would feed back the information to senior management and media personnel in charge of the incident. In the aftermath of the incident a review was undertaken, and I played a key part in updating the county's contingency plans, so we would be better prepared during the next flooding event.</p> <p>I was the county lead with regards to flooding, I learnt from colleagues in the wider business to optimise the process within the county and bring it back on track with regards to meeting its responsibilities following flooding incidents. As part of this process I also undertook training and up skilling of colleagues to bring them up to speed and ensure the county stayed on track and met its reporting responsibilities in relation to flooding. I also attended and participated in the South Flooding Working Group which helped to share best practice with regards to flooding across the wider business.</p>
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3.8 C2 Understanding, promotion and application of Health and Safety (H&S)

Knowledge Group	Competences	Comments
Engineering Design and Construction	All	Understand the significance of the activities undertaken during design and construction from a H&S perspective.
Health and Safety, Environmental and Quality	All	Understand the legislative framework governing H&S within the working environment and understand how your activities need to adhere to relevant requirements.
UDG Experience		H&S implications of all activities within an urban drainage project, from working within an office to construction on site. This includes the work undertaken by contractors undertaking data collection on your behalf. The need for risk assessment, method statements and permits to work for site related activity and understand the need to have health and safety in mind when planning site activities.
Additional Guidance		<p>Demonstrate awareness of employers Health & Safety policy and procedures, or Health and Safety practices appropriate to all sects of professional activity.</p> <p>Contribute to the development of safety guidelines, considering risk assessment, safe systems of work, control procedures and recovery methods.</p> <p>Assess and create safe systems and conditions, putting community safety at the forefront of consideration.</p> <p>Promote adherence to safety requirements. Investigate accidents and unsafe behaviour of individuals and the environment in which they work.</p>

	<p>Show awareness of your employer's H&S policy and procedures, or the practices appropriate to aspects of your professional activity. Look at how you personally can adhere to safety requirements</p> <p>Attending safety trainings; Checking others' safety precautions; Contribute to/ prepare a H&S Plan; Create a site H&S plan; Stopping works until a safety issue is rectified; Carry out site inductions;</p> <p>Your knowledge of personal health & safety requirements must be clearly defined, together with how this knowledge is incorporated, or has been developed from legislative, regulatory, codes of practice and the normal parameters that broadly equate to custom and practice. It is important to realise that health & safety covers all activities, even outside the working environment and in personal time. This is intended to prevent such activities having a detrimental impact upon subsequent or impending activities in the workplace. This general philosophy must be rolled out to all personnel under both your direct and indirect control. Safe working practices must be sacrosanct.</p> <p>Promote adherence to safety requirements. Investigate accidents and unsafe behaviour of individuals and the environment in which they work.</p> <p>Show your awareness of your employer's health & safety policy and procedures, or the practices appropriate to aspects of your professional activity. Look at how you personally can promote adherence to safety requirements.</p> <p>Co-ordinate and control environmental safety and impact e.g. in respect of pollution control, biodiversity protection etc...</p>
Example Experience	<p>I planned flow and asset surveys on an SMP to minimise risk to the contractors who would be undertaking the work by wherever possible keeping locations out of the highway. I used the previous model to understand the likely flow conditions within these sites and included this information in the plans provided for primary and alternate sites. This includes: -</p> <ul style="list-style-type: none"> • Location: near busy road or near water courses or near ditches • Asset type, size, system type etc.: deep or shallow, foul or storm • Additional assets: in case an asset is unsafe to survey • Logistics: Distance between each asset <p>Before completing a catchment appreciation site visit I completed a risk assessment and ensured I had correct PPE. When on site I used a dynamic risk assessment to review issues which was identified on site and modified my activities accordingly to mitigate risk.</p> <p>As part of Drainage Impact Assessment exercises, when considering appropriate solutions to resolve the flooding, I have investigated the aspects such as accessibility to site, traffic sensitivity and offsite or onsite construction to ensure the work can be carried out safely.</p> <p>I completed H&S course for non-designers where I have learned variety of hazards I should be considering at my day to do work. In my current role I visit offices as well as construction sites; my safety plan reflects my commitment to communicating to my line managers on my whereabouts, and adhering to site safety instructions when on site, through which ensuring safety of myself and others.</p>

3.9 C3 Your contribution to sustainability

Knowledge Group	Competences	Comments
Integrated Urban Drainage	Sustainable Drainage Systems (SuDS)	Understand the benefits of SuDS systems within the urban environment. Contribute to the implementation of SuDS within the urban area. Understand the difference between new and retrofit SuDS solutions.
	Exceedance	Understand how water can be managed on the surface.
Feasibility and Catchment Strategy	Feasibility Assessment	Develop sustainable options as part of feasibility studies.
Engineering Design and Construction	All	Understand and promote more sustainable materials within construction.
UDG Experience	Development of sustainable options (at various stages of confidence) as part of the catchment strategy to manage flooding, pollution and capacity.	
Additional Guidance	<p>Co-ordinate and control environmental safety and impact e.g. in respect of pollution control, biodiversity protection etc.</p> <p>Promote the wise use of non-renewable resources through waste minimisation, recycling and the development of alternatives whenever possible.</p> <p>Strive to achieve the beneficial objectives of your work with the lowest possible consumption of raw materials and energy, and by adopting sustainable management practices.</p> <p>Manage environmental performance through audit, reporting, evaluation, planning and monitoring.</p> <p>Look at how you have promoted the wise use of non-renewable resources through possible waste minimisation and recycling. Also, the benefits you may have observed through the lowest consumption of raw materials and energy and by the adoption of sustainable development practices</p> <p>Assess contractors work against an EMP;</p> <p>The sustainability of all activities (audit, reporting, evaluation, planning and monitoring) must be emphasised, especially those that impinge on environmental aspects. The widest possible linkages with the need to protect and enhance the environment must be considered and mentors must relate to this as a requirement not as a helpful adjunct to their role.</p> <p>Look at how you have promoted the wise use of non-renewable resources through possible waste minimisation and recycling also the benefits you may have observed by the lowest consumption of raw materials and energy and by the adoption of sustainable management practices.</p>	
Example Experience	<p>As an EMS Consultant, I was involved in setting up the Environmental Management System at an R&D facility in India. During the initial environmental review, I identified some activities where a large amount of waste was being generated mainly due to lack of awareness and due to the materials used. I collaborated with supply chain and facilities teams to bring in changes and improvements. I also organised road shows displaying the initiatives that were being undertaken as part of the EMS initiatives which was very well received by the management and helped to increase awareness of environmental impact of the organisation's activities amongst the employees. This helped to drive changes in behaviour and resulted in almost a 45% reduction in food waste and 32%</p>	

	<p>reduction in consumption of materials such as tissues and wipes in the first quarter since these changes were implemented.</p> <p>In my role as a modeller at a water company, we were approached by the Local Authority to investigate a solution proposed by a consultant to resolve flooding at a customer property that had been repeatedly flooded in the last five years. The proposed solution was a based on a site visit and discussions with the customer, I identified the root cause of flooding was due to the road gullies being inundated by large overland flows that run down a steep hill and end up flooding the property at the lowest point. I organised a manhole survey and an impermeability area survey of the area. I enhanced the existing foul hydraulic model with the surface water network. I also built a 2D model of the area and ran the model for the past flooding dates using Radar rainfall data. I was able to confirm the mechanism of flooding using this model as per the customer's reports. The predicted flood volumes and areas inundated compared well with the consultant's findings. I met with the Local Authority representative and the consultant and suggested a few locations to implement a SUDS solution to which they agreed. Further, these solutions were tested in our hydraulic model and were deemed acceptable. It was a great opportunity to drive change and bring about the right solution for the catchment.</p>
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3.10 C4 Understanding, promotion and application of quality enhancement and Quality assurance (QA)

Knowledge Group	Competences	Comments
Data Collection and Management	All	All aspects of data collection work will need to have robust quality procedures in place.
Hydraulic Modelling	All	Robust documentation of processes and procedures is a key aspect of the modelling process. This will include appropriate checks and approvals of decisions and steps taken through model build and verification.
Health and Safety, Environmental and Quality	Quality Management	Understanding of quality systems within your workplace and how they are applied within the modelling context.
UDG Experience		Quality management is fundamental to any project within the urban drainage sector. It should be fundamental to all aspects of any type of hydraulic model and the stages of its development.
Additional Guidance		<p>Show awareness of any quality procedures your company may have in place, understand how they are applicable to all aspects of work undertaken and how you have implemented them within your own project work.</p> <p>Definitive references must be made to the need to understand why data collection is being planned, or where data is being collected, the importance of assessing the reliance and hence the quality of such data for use in specific circumstances. Not all data is suitable for such usage. This applies to direct use by oneself or by subordinates and colleagues for whom you are responsible.</p> <p>Contribute to the continuous improvement of quality management systems.</p> <p>Apply the appropriate quality procedures and assurance techniques.</p>

	Foster the acceptance of quality management principles in colleagues to ensure that work is performed to the established standards.
Example Experience	<p>I have been seconded into a team for two weeks to carry out audit on the input data to their asset information system, and to correct any ambiguous and incomplete information through liaising with their asset teams. The task was successfully completed with all inputs validated within the agreed time.</p> <p>As a hydraulic modeller, it is crucial that the asset data I use can be relied upon. During the model build, I have proposed data collection for all the assets with ambiguous and incomplete information; I attended sites to carryout quality assessment on 5% of all manhole surveyed as per the water company specification, and to resolve any connection issues through connectivity surveys, within the constraints of budget and time. For those assets that could not be surveyed, I have used additional information such as as-built drawings, asset information from previous models, ground data etc. Additionally, I have undertaken sense checks on all flow monitoring data and highlighted any anomalies to the survey teams for further actions. As an additional means of checking, I normally obtain the telemetry data for pumps to understand their operations. This has not only provided a good model prediction but also gives one the confidence of the model.</p> <p>Currently, as a BIM implementation consultant one of my key responsibility is to ensure that the team is using the system correctly to ensure compliance to ISO 9001 and BIM Level 2.</p>

3.11 D1 Ability to communicate in English

Knowledge Group	Competences	Comments
General Skills	Report Writing	The production and review of technical reports associated with projects undertaken. The development of any non-technical project related materials including marketing documentation.
	Communication Skills	The ability to communicate to colleagues, peers and clients in a professional manner.
UDG Experience	Presentations at UDG events and the development of associated papers. Participation in workshops and knowledge share groups.	
Additional Guidance	<p>Communicate with others, at all levels, both in your discipline and in other sectors. Share experiences, ideas and plans via presentation and discussion to achieve and implement a solution to a technical challenge. Set out problems factually, providing objective evidence, opinion and statement, so that they may be solved.</p> <p>Develop independence and integrity as the mainstay of your own personal conduct and judgement.</p> <p>Representing your company; Allowing others to benefit from your work;</p> <p>Work in compliance with company policies and standards;</p> <p>Communications (or even leading) a large project team, perhaps inter-disciplinary and including external members i.e. non-Mouchel; Working on sensitive projects e.g. of high public concern/ media coverage;</p> <p>Understanding a client's needs/viewpoint (feedback forms);</p> <p>Voluntary training, attend courses;</p>	

Example Experience	part of my role as a hydraulic modeller working on a Severn Trent Water framework, I have to write reports to the client to deliver projects, have verbal and written communication with operational staff, and provide on-the-job training for junior colleagues. I have also submitted a written report which I also presented on to the Dr Jenkins competition, a CIWEM event for the East and West Midlands regions, in early 2016. All the above has been undertaken in my native English, which I have used in a professional capacity throughout my career.
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3.12 D2 Work professionally, ethically and comply with relevant codes of conduct

Knowledge Group	Competences	Comments
Stakeholder Engagement	All competences	Understand the requirements of dealing with members of the public and stakeholders within the context of urban drainage studies.
UDG Experience		Working on Integrated Catchment Studies, Integrated Urban Drainage Studies which involve interaction with members of the public and/or stakeholders. Have attended and/or presented at public meetings to discuss project proposals or outcomes. Working with customers on any urban drainage initiatives.
Additional Guidance		Demonstrate application of, promote and comply with professional ethics and codes of conduct in your work. Ensure that those for whom you have responsibility comply with the required standards. Abide by the legal liabilities and risks in contractual arrangements. Try to give examples of situations where relevant codes and individual actions by stakeholders have fallen short of requisite standards of work and behaviour patterns. Demonstrate application of, promote and comply with professional ethics and codes of conduct in your work and ensure that those for whom you have responsibility comply with the required standards
Example Experience		As a professional, I have been required throughout my career to conduct myself in the correct manner in differing environments, including office-based, public-facing, and on-site duties. All of these require a professional approach. Respecting the codes of conduct that apply in these situations do differ and must always be followed. Of particular relevance to my work is respecting privacy of data and the ethical issues that go with that, which requires an understanding of the sensitivity of data such as reported flooding incidents, and the potentially damaging consequences of this data being incorrectly divulged, not just to the client, but to unsuspecting members of the public, who could find the value of their homes and insurance premiums affected. As such, all stakeholders that I deal with are treated with respect and courtesy, and the data that is to be shared with them is checked to ensure that it is appropriate

3.13 E1 Demonstrate continuing professional development

Knowledge Group	Competences	Comments
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All Groups	All	All the competences within the framework will require some level of training and development activities to support the process.
UDG Experience		<p>Maintenance of CPD Record Within Personal Development Plan.</p> <p>Development of Technical Skills within Urban Drainage Field and within wider team management, project management and behavioural skills areas.</p> <p>Demonstrate Achievement of UDG Competences and Future Development Targets.</p> <p>Be able to demonstrate you have a career plan moving forward as part of your professional review and development process.</p>
Additional Guidance		<p>Your understanding and willingness to foster and involve yourself in continuing professional development programmes by reading, mentoring, meetings and application of lessons learned is essential and must be displayed.</p> <p>Demonstrate a commitment to continued maintenance and improvement of knowledge, experience and skills via a personally developed CPD programme;</p> <ul style="list-style-type: none"> - Investigate needs and exploit opportunities for the transfer of technology within a particular industry or area of expertise, taking appropriate actions to secure the value of intellectual property; - Continually optimise and enhance existing technology, services, products, current practices and processes ensuring continuing fitness for use; - Apply and exploit the potential opportunities of emerging technology, products and processes and other relevant developments; - Assess, review and identify the potential impacts of these changes ensuring sound environmental use and continued quality.
Example Experience		<p>As part of my continuing professional development, I regularly attend CIWEM regional presentations on topics both relevant to my work, and not immediately relevant. The former is a good opportunity to learn about the experiences of others, exploring techniques, best practice, innovations, and lessons learned from mistakes. The latter gives opportunities to keep in touch with work being undertaken in the wider industry, and to identify any processes that could be adapted to improve the practices being undertaken in my own workplace. I also take what opportunities there are at work to undergo training, and to train others which I've found to be a good method of entrenching my own knowledge.</p>

3.14 E2 Discuss your commitment to CIWEM

Knowledge Group	Competences	Comments
General Skills	History of UDG	Understand the origins of the UDG, how it transferred from WaPUG, what the purpose of the group has been over the years.
UDG Experience		<p>Attend UDG Conferences – Spring, Autumn, Training Day, Scotland / Ireland</p> <p>Present Papers at UDG Meetings</p> <p>Contribute to UDG Workshops</p> <p>Contribute to UDG Research Initiatives</p> <p>Promote the activities of the Group within your organisation / Local Branch.</p>

	Serve on the UDG Committee or on the New Members Sub Group.
Additional Guidance	<p>Continuing support of CIWEM activities is essential and evidence supplied of your intent to enhance this pathway into the future will be of benefit. Where possible demonstrate a commitment to the development of CIWEM by giving papers at local Branch meetings, presenting papers for publication in the Journal or contribution to the management of CIWEM by volunteering for involvement in the relevant technical or standing committees.</p> <p>Local Branch - Participate on a Branch Committee, New Members Group Organisation – Participate in Structured Training, Discussion Groups, Knowledge Sharing and assist colleagues with CIWEM applications. Provide evidence where possible of attendance at CIWEM events over your training period.</p>
Example Experience	<p>My commitment to CIWEM is demonstrated by my position on and work for the Urban Drainage Group's New Member's committee, which I have been a part of since its formation in 2016. I sit on the Membership subcommittee, which is focused on encouraging members to join CIWEM and the UDG and providing useful information to encourage people to strive for both membership and chartership. I also regularly attend CIWEM regional events and encourage others within my firm to attend these and build up their CPD profile.</p>

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