

Southern Water AMP5 Capital Programme

£1.75bn investment to meet the 2010-2015 business and regulatory objectives

by Julian Raison

Southern Water (SW) supplies wastewater services to over 2 million households across Kent, Sussex, Hampshire and the Isle of Wight, and clean water to over 1 million households in the same region. The area of water supply is peppered with a number of water-only companies. Between 2010 and 2015, Southern Water will be investing £1.75bn in its assets to maintain high quality supplies of drinking water to customers and to maintain the quality of the environment through discharges from wastewater treatment works across its region.



Sewer installation in East Sussex

Courtesy of Southern Water

The programme of work is separated into four principle areas:

1. *The "Quality" Programme* - Delivering a £500m programme of work to meet tighter environmental requirements agreed with the Environment Agency, principally for the quality of discharges from wastewater treatment works. This includes the completion of a major scheme at Peacehaven to construct a new wastewater treatment works for Brighton and Hove.
2. *A series of sewer improvement schemes* totalling £50m to reduce the risk of flooding to customer properties.
3. *Enhancements to the water and wastewater networks* to cater for new demands and required capacity enhancements due to new development (£240m). This programme of work also includes schemes to manage the balance between water demand and supply across the region. The industry-leading programme of Universal Metering will provide almost all customers with a meter by 2015. SW are also delivering enhancements to a number of water supply works to improve the volume of water available, in line with the published Water Resources Management Plan.
4. *Maintenance of the existing asset base* to maintain the level of service provided to customers and the environment

(£960m). This is the largest part of the programme and the element that requires the most work to prioritise to ensure that the maximum benefit is derived for each £ invested.

Quality programme

In order to meet the environmental obligations over the next 5 year period, Southern Water are working with their delivery partner, 4Delivery Ltd, to construct various process improvements at over 100 sites across the region to address the requirements of environmental legislation, including the Water Framework Directive and the Shellfish Waters Directive.

The most significant project included in this programme is the completion of a £300m scheme at Peacehaven, to construct a new 300,000 PE wastewater treatment plant and sludge recycling centre to serve the city of Brighton and Hove. This includes installing 11km of new tunnels, up to 40m below the surface.

Sewer flooding

When the business consulted with customers at the previous Price Review in 2009, the issue of flooding from sewers was raised as a priority area for resolution. During the AMP5 period, Southern Water are removing 41 properties from the DG5 flooding register



Tunnel boring machine at the Brighton & Hove Wastewater Treatment Scheme

Courtesy of Southern Water

of properties at risk of internal flooding. This will be achieved by undertaking sewer improvements to increase the capacity of the sewerage networks. Southern Water will continue their investment to improve assets to ensure that the number of properties at risk of frequent internal flooding does not increase above the lower level achieved by the 41 property reduction.

Where the cost of a flood alleviation scheme is high, and does not meet the level of investment that SW's customers support, Southern Water is installing mitigation measures to reduce the impact of flooding. The majority of this investment will be the installation of non-return valves in the sewers and flood barriers to prevent the flow of wastewater into the homes of customers.

Capacity enhancements

A key element of the programme is providing additional water resources, wastewater treatment capacity and capacity in the water and waste networks. In order to meet the demands of new customers in the region and to manage the increased usage of existing customers, SW are also helping customers to use less water (and save money and energy) through the innovative Universal Metering Programme, which will deliver approximately 500,000 new meters to customers, meaning that by 2015, the majority of customers will pay for the water they use. This is supported by tariffs, which provide customers with a smooth transition to metered water use. Metering is shown to reduce demand, which helps to prevent the need to abstract more water from the environment to meet increasing demand. *(Note: A detailed description of the Universal Metering Programme appears in this publication).*

In conjunction with the metering programme, Southern Water has also completed a major scheme at the Hardham Water Supply Works in Sussex to abstract more water from the River Arun. SW are also planning work in Hampshire to provide additional water resource to support increases in demand. *(Note: A detailed description of the*

Hardham Water Resource Project also appears in this publication).

A major part of the programme to deliver capacity enhancements is to work with developers to provide new water mains and sewers. It is anticipated that over 75,000 new sewer connections and over 43,000 new water connections will be made across the region between 2010 and 2015. Where appropriate, Southern Water will also review where the capacity of the wastewater treatment works require increases to meet these new demands.

Maintaining the existing asset base

This is the largest part of SW's AMP5 investment programme, and requires the most effort to ensure that every £ of investment gives the highest level of benefit to customers and the environment. The performance of the asset base is measured using the term "serviceability" (the ability of the assets to provide service to customers and the environment, now and into the future). This is measured using a wide range of "serviceability indicators", ranging from mains bursts, to wastewater treatment works non-compliance.

The programme is aligned to achieving performance against each of these indicators to ensure that the best value to customers is delivered. Projects are identified and prioritised according to the benefit to each indicator. This is a critical area for the company to perform in as it will have a direct impact on the results of the next Regulatory Price Review.

Programme and project management

The balance of work is changing from larger "Quality" projects in AMP4 to many more of these maintenance-type projects in AMP5, which require more definition and potentially more Operational involvement. In order to support this approach, Southern Water is developing improved approaches to project and programme management, including new processes and systems to enable more intelligent planning to deliver efficiencies in the programme.



Mains replacement work underway

Courtesy of Southern Water


Improved process, tools and training of staff involved in the process will ensure that as SW progress through AMP5 and prepare for the 2014 Price Review, the company is best placed to deliver optimised plans, identify and achieve efficiencies and achieve the outcomes that must be delivered for customers and the environment.

Partners

To support the delivery of the AMP5 plans, there are a number of framework consultant and contractor partners with whom Southern Water are working collaboratively to deliver the programme.

- **4Delivery Ltd** is a consortium of industry leaders United Utilities, Costain and MWH, bringing together a wealth of experience and knowledge from the utility and construction sectors. The company is carrying out an ongoing programme of environmental works on behalf of Southern Water across Sussex, Kent, Hampshire and the Isle of Wight, with responsibility for the project management, design and delivery of a wide range of schemes.
- **BTU (Barhale Trant Utilities)** is a brand new company established to provide water services to Southern Water. BTU has been awarded the Multi-Services Framework (MSF) for mechanical and electrical works across Hampshire and West Sussex, which includes hundreds of treatment works and pumping stations. The company also has an Open Framework for sewerage contracts.
- **Morrison Utility Services** are providing M&E services for the maintenance, refurbishment and renewal of water and wastewater assets, as well as civil engineering works. The services provided are diverse, including a wide range of assets from borehole refurbishment and dosing plants, through to pumping stations and treatment works improvements. The contract also includes maintenance and response services to support the maintenance of stable serviceability levels of networks.

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- **Clancy Docwra Ltd** undertakes the maintenance and repair of the water & sewerage networks and the installation of new assets throughout Southern Water's region including Kent, Sussex, Hampshire and the Isle of Wight. Furthermore, on the Isle of Wight, they undertake mechanical and electrical (M&E) maintenance and repairs to Southern Water's water and wastewater treatment works, as well as the installation of stand-alone water and wastewater schemes and civil structures associated with M&E services.
- **Atkins** is a multi-national design, engineering and management consultancy. Whether it is the concept for a new skyscraper, the upgrade of a rail network, the modelling of a flood defence system or the improvement of a management process, Atkins plans, designs and enables solutions. It is the largest multi-disciplinary consultancy in Europe and the world's eighth largest design firm. Atkins also has one of the highest ratios of professionally qualified employees of any company worldwide.
- **The Mott MacDonald Group** is a management, engineering and development consultancy serving the public and private sectors worldwide. Its £900 million business spans 120 countries, with 14,000 staff working in all sectors from transport, energy, buildings, water and the environment to health and education, industry and communications.

Summary

To conclude, Southern Water's AMP5 programme includes a wide range of projects to meet all of the business and regulatory objectives between 2010 and 2015. The company is confident and focussed on the delivery of a clear programme of work to benefit both customers and the environment.

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