



Maximising value creation opportunities

During the next five-year Asset Management Programme (AMP6), UK Water companies will face their biggest ever efficiency challenge to date.

As part of the Business Plans Review, Ofwat looked at the costs that each water company put forward and assessed them against what they considered to be the most efficient cost for delivering the service.

Water companies proposed £45.7 billion of expenditure they deemed was necessary. Ofwat then challenged these costs as they considered they were not efficient or justified, and granted only £44.3 billion, i.e. a £1.4 billion reduction in cost.

In addition, Ofwat has set the water companies challenges on the cost of capital, ensuring that customers are kept at the heart of their business and have less for their

ties is how the water companies deal with the supply chain and in particular with the pipe supplier. To maximise impact on cost and efficiency, early involvement of the supplier is critical. This will ensure that water companies receive the best advice and support from the start of a project, which can mean a saving of millions of pounds.

A reputable supplier will be able to provide support at the design stages of a project, making sure the benefits of the



and sometimes even on operational costs, which would represent real economic benefits to the water industry, well beyond cost savings on products alone.

Many of the projects in which Saint-Gobain PAM UK is brought into have already been designed. In over 90 per cent of cases, Saint-Gobain PAM UK is able to suggest design improvements and in many scenarios avoid system failures due to inadequate design. Saint-Gobain PAM UK has seen countless instances in which these savings have reached hundreds of thousands of pounds.

It is likely that pipe suppliers of other materials will also be in a similar situation and this is where bringing a supplier on board from the start can have a massive impact in minimising TOTEX.

This sort of approach

Helping improve the water supply system in Brunei

Supplying drinking water in Brunei is not an easy task. Located on the north coast of the island of Borneo in Southeast Asia, Brunei has adequate water sources but the development of the water supply system has been affected by distance and local conditions.

Even as recent as 1996, a small proportion of residents living in remote inland areas of Brunei were unable to gain access to a potable water supply. Part of Brunei's water supply is transported some 80km from its rainfall regions to city reservoirs and rapid population growth in Brunei since the 1960's has led to demand occasionally exceeding available resources.

Everyone in Brunei now has access to good quality drinking water, including those living in rural areas, and Bruneians now use about 450 litres each per day, making Brunei one of the highest water users per capita in the world.

In the 1990's, the Bukit Barun Water Treatment Works (WTW) was constructed to cater for the increasing water demand in the Brunei-Muara district. The Bukit Barun WTW can supply nearly 80% of the water to the Brunei-Muara district and is now capable of supplying 430 million litres of water daily.

For several years, the Water Services Department in Brunei has concentrated on improving the production capacity and robustness of the water supply



A total of four concrete clarifier tanks have been newly constructed and Flexcrete materials were specified in order to underpin and assure the design life of the structures, and provide a solution to non-conformance with specification. Part of the face of the cast concrete wall in the clarifier tank was found to be defective when the shuttering was removed and the requirement was for a concrete reinforcement system that would increase the effective cover to the steel reinforcement. The vertical concrete tank walls are 3m in height and the lamella plate clarifiers are made from stainless steel.

After the surface profile of the concrete was levelled with Monolevel 844SP, an engineering grade pore filler and thin screed that is approved under Regulation 31(4)(a) for use in

concrete to which it is applied. As it is water-based, it exhibits minimal hazard during application and is non-toxic when cured.

Cemprotec 2000-S, an elastomeric, waterproof reinforcing tape, was also applied between the filter inlet channel and the clarified water channel. WRAS approved, Cemprotec 2000-S provides an impermeable, highly flexible seal over live cracks and joints. This was an ideal product as the requirement was for a solution that could accommodate the expansion movement and at the same time, remain watertight.

In addition, Flexcrete products were used for application to the pre-chlorine flash mixing chamber, in order to protect the concrete structure from chlorine and lime attack. Chlorination is used at Bukit Barun WTW for the oxidation and disinfection of

more than a 25 per cent reduction. This huge task will not be achieved without seriously questioning how current practices can be improved and/or changed.

One of the areas which provides greatest opportunity

ing of the project is required at a later stage - something that takes place all too often.

Respectable suppliers are experts on their material and will have the capability of advising on all aspects of pipeline design and installation

together to save money and to innovate.

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chloride (PVC) based, but had deteriorated over the years and are being replaced with 1,200 mild steel pipes with a polyurethane external protective coating and an epoxy internal protective coating.

Part of the improvement works involves a £14m extension of Bukit Barun WTW which is due for final completion in September of this year. This extension will increase the WTW's capacity to 490 million litres of water daily in order to meet increasing water consumption demand. As part of the repair and waterproofing side of the contract, over 5 tons of materials produced by UK manufacturer Flexcrete Technologies Limited have been supplied by Flexcrete's distributor in Brunei, Rigoh Sdn Bhd. The main contractor for the repair and waterproofing works is Ley Choon EWC Sdn Bhd and the Consulting Engineers are Jurusay Perunding.

vides an effective barrier against the effects of aggressive acid gases, moisture and chlorides, and also has greatly enhanced chemical resistance. It forms a hard, highly alkaline coating for the protection and structural waterproofing of concrete, resisting positive and negative pressure under a 100 metre head. It is also approved under Regulation 31(4)(a) and is CE marked in accordance with BS EN 1504 Part 2, the pan European standard for concrete repair as well as carrying British Board of Agreement (BBA) certification.

A 2mm coating of Cementitious Coating 851 provides equivalent cover to 100mm of good quality concrete and being cement based, it chemically reacts with the substrate to form an integral part and will have a design life to match that of the

ling biological growth throughout the water treatment system.

Such is the chloride resistance of Cementitious Coating 851 that Flexcrete has received official confirmation it will resist chloride penetration for at least 26 years. In 1988, a 2mm thick film of Cementitious Coating 851 was applied to a concrete slice and sealed in a chloride ion diffusion cell in the laboratory at the VINCI Construction Technology Centre and it is still going strong some 26 years later. The chemical resistance of Flexcrete products was another important consideration, as during the water treatment process at Bukit Barun, lime is added to the water to adjust the pH level of the raw water and reduce the CO2 concentration. This article was written by Graham James OBE, Director of Flexcrete Technologies Limited

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A new era on the horizon for the rainwater harvesting sector

Northamptonshire based manufacturer, Marsh Industries, has re-launched its 'RainCell' range of domestic and commercial rainwater harvesting systems addressing calls from contractors and end-users for improved product quality and system reliability throughout the industry.

Managing Director, Steve Boyer, said "We recognised there was need for improved product quality and system reliability in the rainwater harvesting sector. We also identified that the simplicity of systems from delivery and installation to operation and maintenance had to be addressed.

"With this in mind, our engineers and product developers spent considerable time researching and developing a new range of systems comprising of storage tanks manufactured using the highest quality materials and state-of-the-art

components sourced from across Europe.

"We believe that the new RainCell has the potential to be the best quality system which offers exceptional value for money in a competitive market."

The RainCell is available in a number of options and comes in capacities from 1500 and 20,000+ litres. Marsh supplies rainwater harvesting systems, sewage treatment plant and off-

mains drainage products for domestic, commercial and industrial applications as well as offering engineering design and technical support.

With one of the largest merchant distributor networks available in Europe, clients ask for Marsh products and services because they know the company delivers from a solid foundation of knowledge, customer support, product quality and proven performance.



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