

# Ensuring Water Supplies in Thirsty South

## water companies invest £31m to safeguard resources

by  
Barry Knight & Keith Jeffery

**S**outhern Water has faced an increase in demand for drinking water over the last 25 years and this, in conjunction with changing weather patterns, has meant significant investment is required to help ensure there is enough water available in the right places at the right time. The company is investing in two separate projects across the region that will go some way to help meet the demands of its customers. The first project has seen the company working with Portsmouth Water Company; together they have invested £6.5 million in a transfer pipeline from PWC's Littleheath Reservoir to Southern Water's Water Supply Works at Hardham, near Pulborough in West Sussex. In the second project Southern Water is investing £13 million in its section of a transfer main between the South East's strategic water resource of Bewl Water Reservoir near Lamberhurst in Kent and South East Water's Hazard's Green Water Supply Works at Ninfield. These measures are, however, only part of Southern Water's 25 year-water resources strategy.



A toast from Project Manager Keith Jeffery to start the Bewl – Darwell transfer scheme

courtesy: Southern Water

### North Sussex Bulk Supply

The first project to be completed was undertaken in conjunction with the neighbouring Portsmouth Water Company (PWC) and is intended to supplement the output of Southern Water's Hardham Water Supply Works (WSW) at times of severe drought.

Typically, each year, SW's supply works at Hardham is able to maintain its maximum output during the summer to meet its customers' requirements. However, at times of extreme drought there is a concern that there will be insufficient resources available at Hardham to maintain supplies to its customers.

This scheme will provide an additional supply of 15MI/d from PWC's Littleheath Service Reservoir near Fontwell to Southern Water's Hardham WSW to help safeguard water supplies.

Hardham currently extracts water from the River Rother and from local groundwater sources. However, abstraction from the Rother is limited by the requirement for a minimum residual river flow to remain downstream of the point of abstraction. Under severe drought conditions, such as were experienced during the autumn of 2003, low river flows severely restricted the volumes available for water supply.

Portsmouth Water's contractors, *Solent Excavations*, installed a 7km pipeline so that water can be pumped between Portsmouth Water's Littleheath Reservoir via a booster pumping station at Slindon to a new break pressure tank at Whiteways Lodge round about near Arundel on the A29. The break pressure tank is located close to the supply boundary between Portsmouth Water and Southern Water. *Dean & Dyball*, undertook the civil work on the



Just some of the 180 pipes required to cross Bewl Reservoir

courtesy: Southern Water

break pressure tank and booster station building and *Black & Veatch Refurbishments* carried out mechanical and electrical work at the booster station. From Whiteways Lodge, water will gravitate through a 10km pipeline to the supply works at Hardham, where it joins processed water from river and groundwater sources before entering the water distribution system. This section of the pipeline and associated works have been designed and installed by Southern Water's K3 West Integrated Team, *Black and Veatch/Costain*.

The gravity main was constructed from 450mm-diameter HPPE pipe. This material was deemed to be the most cost effective solution across a variety of ground conditions encountered, including soft clays on the flood plains of the River Arun. The pipeline was installed under the A29 at Bury, using directional drilling methods. Both sections of the pipeline have been flushed and pressure tested and it became operational in June 2004.

### **Bewl-Darwell Transfer Pipeline**

**Elsewhere in the region, a £25 million Southern Water scheme aimed at securing water supplies in Hastings and Bexhill is being carried out alongside South East Water.**

A new 29km pipe is being installed between Southern Water's Bewl Water Reservoir at Lamberhurst in Kent and South East Water's Hazard's Green Water Supply Works. This pipe will enable water to be transferred from the Medway area to places such as Hastings and Bexhill where water shortages can be experienced. Up to 35 million litres of water every day will be able to be transferred when the scheme becomes operational in the Autumn.

In this scheme Southern Water's K3 East integrated team of *Morrison, Brown and Root* are involved.

Before the companies applied for planning permission they shared their proposals with the public at a series of exhibitions along the pipeline route, first in 2002 and again in 2003 after alterations had been made to the route following consultation. Planning permission was granted.

However, during the drought in the autumn of 2003, a decision was made to accelerate the scheme to make the pipeline operational by the autumn of 2004. A further planning application was then submitted to take into account changes that would make this acceleration possible, such as laying a longer section of pipe on the bed of Bewl Reservoir to minimise environmental constraints and possible delays.

During this second period of planning consultation, contractors carried out preparatory environmental work such as temporarily removing hedgerows, trimming trees and installing 7km of fencing to keep great crested newts away from the pipeline route. During construction, ecologists continue to supervise the work to protect dormice, badgers and reptiles. In addition, much of the route is subject to an archaeological watching brief.

Southern Water is laying a 17km length of 450mm-diameter pipe from the north end of Bewl Reservoir; it will lie on the reservoir bed for 3km and emerge from the water at the southerly end of the reservoir. The pipe will then be laid across farmland to Darwell Reservoir in open cut trenches, except where it needs to cross roads, railways and 51 watercourses, where directional drilling will be used.

In a related £4 million scheme, Southern Water is also upgrading the water supply works at Brede to treat the increased volume of water going through the system.

South East Water's contractors, *Mowlem (AH Ball) Ltd*, are laying a 12km length of pipe to the Hazard's Green Water Supply Works, which they will also be upgrading. *Dean & Dyball* will install a new break pressure tank at Little Sprays Farm and *Edmund Nuttall Ltd* will install the intake works at Darwell reservoir. ■

**Note on the authors:** *Barry Knight*, is the author of 'North Sussex Bulk Supply', *Keith Jeffrey* is the author of 'Bewl-Darwell Transfer Pipeline', both authors are Project Managers with Southern Water.