

Wastewater Treatment for Brighton and Hove



Every day the 250,000 residents of Brighton and Hove, Woodingdean, Ovingdean, Rottingdean, Saltdean, Telscombe Cliffs and Peacehaven, generate 95 million litres of wastewater.

This wastewater is a combination of domestic wastewater from toilets, baths, kitchen sinks, washing machines and dishwashers, water used in factories, and some rainfall.

At the moment, wastewater from the area travels through local sewers – many dating from Victorian times – to the existing Portobello Wastewater Treatment Works at Telscombe Cliffs, which was constructed in the 1970s.

Here, it receives basic treatment, passing through grid-like screens to remove debris such as paper, grit, tampons, condoms and plastic wastes. The flow is then

pumped out to sea through a 1.8km long sea outfall pipe.

This outfall, together with the company's stormwater tunnel built underneath Brighton and Hove beaches, helps to ensure that local bathing waters meet the European bathing water standards.

Southern Water continues to be responsible for the safe collection, treatment and recycling of this wastewater and, in line with UK and European law, must now deliver improved wastewater treatment in the Brighton and Hove area.

This legislation, monitored by the Environment Agency, has already resulted in Southern Water building a number of new and improved wastewater treatment works to serve other Sussex coastal resorts, including Hastings, Bexhill, Newhaven, Eastbourne, Shoreham, Worthing, Littlehampton and Bognor Regis.

Following the completion of the new Bexhill and Hastings scheme, Brighton and Hove will be the only resort in Sussex not to benefit from a modern wastewater treatment works.

Background

In 2001 the Secretary of State for the Environment, Transport and the Regions dismissed an appeal by Southern Water against the refusal of planning permission by East Sussex County Council for a new wastewater treatment works and sludge recycling centre at Southern Water's long established Portobello works.

Southern Water must now find an alternative site for a new treatment works, which will provide a multi-stage treatment process, including biological secondary treatment. This process is similar to that in use at Southern Water's many inland works that recycle cleaned wastewater into rivers.

The search for a new site

Following dismissal of its improvement plans for Portobello Wastewater Treatment Works, Southern Water set up a new project team to undertake a fresh and thorough review of potential locations for a new wastewater treatment works (WTW) and sludge recycling centre (SRC), which deals with solid waste removed during the treatment process, to serve Brighton and Hove.

A Local Authorities Consultative Group, comprising representatives from East Sussex County Council, Lewes District Council, Brighton and Hove City Council, West Sussex County Council and Adur District Council, was formed.

In close consultation with this group, Southern Water reviewed some 66 locations, taking into account the planning, environmental, engineering and operational issues of each location.

Following this lengthy process, eight sites have been retained for further consideration and more detailed studies are being undertaken. They are:

- **Shoreham Harbour**
- **Black Rock and Kemp Town Gasworks**
- **Lower Sheepcote Valley and Kemp Town Gasworks**
- **Upper Sheepcote Valley**
- **Ovingdean South**
- **Peacehaven East**
- **Brookside Farm Tip, Newhaven**
- **North Quay, Newhaven**



Potential treatment works locations reviewed by Southern Water

As a result of the public inquiry decision, Portobello WTW has not been retained on the shortlist for further consideration. However, substantial engineering work is still needed at this site and at Black Rock in Brighton, to ensure wastewater that currently flows to these two locations can be diverted to a new treatment works.

Treatment and Odour Control

Modern wastewater treatment works and sludge recycling centres are technically sophisticated, bearing little resemblance to the old edge-of-town 'sewage farms' pioneered by the Victorians.

The works to serve the Brighton and Hove area will include a multi-stage treatment process. This will involve screening to remove grit and debris, primary settlement to remove solid waste, secondary biological treatment to further break down organic matter, and final settlement to remove any remaining fine particles.



Raw sewage Partly treated Cleaned wastewater Fertiliser granules

The cleaned wastewater will be released out to sea through a new long sea outfall.

Improving wastewater treatment means more sludge will be produced. This will be recycled to produce virtually-odourless organic fertiliser granules for use in agriculture.

Throughout the treatment process Southern Water will incorporate sophisticated measures to control smells.

Photo impressions of the shortlisted sites (west to east)

Shoreham Harbour

Compact WTW and SRC and long sea outfall. Site 8km from Brighton sewer network, necessitating pumping station at Black Rock. Wastewater from Woodingdean, Ovingdean, Rottingdean, Saltdean, Telscombe Cliffs and Peacehaven transferred to site by four smaller pumping stations along 6km of pipeline.



Black Rock and Kemp Town Gasworks

Compact underground WTW at Black Rock and long sea outfall, with SRC at Kemp Town Gasworks. Site at hub of Brighton sewer network. Wastewater from Woodingdean, Ovingdean, Rottingdean, Saltdean, Telscombe Cliffs and Peacehaven transferred to site by four smaller pumping stations along 6km of pipeline.

Lower Sheepcote Valley and Kemp Town Gasworks

Compact underground WTW and sludge treatment tanks, with remaining sludge processes at Kemp Town Gasworks, and long sea outfall. Site 1km from Brighton sewer network. Wastewater from Woodingdean, Ovingdean, Rottingdean, Saltdean, Telscombe Cliffs and Peacehaven transferred to site by four smaller pumping stations along 6km of pipeline.



Upper Sheepcote Valley

Compact WTW and SRC and long sea outfall. Preliminary treatment at Kemp Town Gasworks because site 90m above sea level. Site 2km from Brighton sewer network. Wastewater from Woodingdean, Ovingdean, Rottingdean, Saltdean, Telscombe Cliffs and Peacehaven transferred to site by five smaller pumping stations along 6km of pipeline.

Ovingdean South

Compact underground WTW and above ground SRC, long sea outfall. 3km from Brighton sewer network. Pumping station at Kemp Town Gasworks to transfer Brighton wastewater. Wastewater from Woodingdean, Ovingdean, Rottingdean, Saltdean, Telscombe Cliffs and Peacehaven transferred by four smaller pumping stations along 4km pipeline.



Peacehaven East

Compact WTW and SRC, long sea outfall. Site 11km from main Brighton sewer network. Pumping station at Kemp Town Gasworks to transfer Brighton wastewater. Pumping station at Portobello to transfer to site flows intercepted from Woodingdean, Ovingdean, Rottingdean, Saltdean, Telscombe Cliffs and Peacehaven.

Brookside Farm Tip, Newhaven

Compact WTW and SRC, long sea outfall. Site 12km from Brighton sewer network. Pumping station at Kemp Town Gasworks to transfer Brighton wastewater. Pumping station at Portobello to transfer to site flows intercepted from Woodingdean, Ovingdean, Rottingdean, Saltdean, Telscombe Cliffs and Peacehaven.



North Quay, Newhaven

Compact WTW and SRC, long sea outfall. Site 13km from Brighton sewer network. Pumping station at Kemp Town Gasworks to transfer Brighton wastewater. Pumping station at Portobello to transfer to site flows intercepted from Woodingdean, Ovingdean, Rottingdean, Saltdean, Telscombe Cliffs and Peacehaven.

Your views

The company welcomes comments on the shortlisted sites. These can be made in writing to **Southern Water (Brighton and Hove)**, Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX or at www.southernwater.co.uk/brightonandhove by 10 February 2003.



Southern Water will collate all the responses and these will assist the company in choosing a final site on which a planning application will be submitted.