Crossness

The Crossness Southern Outfall Works are located on the Erith Marshes on the south bank of the River Thames at Halfway Reach.

This vast Victorian pumping station was built, near to the Halfway House tavern in 1864, as the final link in a system of interconnecting sewers built across South London between 1860 and 1864. The sewer system, matched by a similar system north of the river, was built by the Metropolitan Board of Works under the direction of their chief engineer, Joseph Bazalgette. The building still stands today and is the only Grade 1 Listed industrial building in south-east London, which is why it is an important heritage site nationally as well as locally. In addition, the works contain a concentration of the largest rotative beam engines in the world and were part of one of the most advanced feats of public health engineering at the time they were built. The engine house together with its ancillary buildings and works were constructed by the contractor William Webster and the site was officially opened by the Prince of Wales (later Edward VII) on 4 April 1865.

Prior to the building of these sewers, the Thames was serving as the main sewer for London. In all some 182 streams and sewers ran down into the Thames and the flow from these had been aggravated by the introduction of flushing toilets. When one considers that in mid-nineteenth century the river was still being used for drinking water by a rapidly rising population it is hardly surprising that London had to face an increasingly frequent series of cholera epidemics in 1831,1842,1848 and 1852. Edwin Chadwick had identified the lack of adequate sewerage and the associated pollution of the drinking water as the source of the infection in 1842 but it was not until 1855 that the President of the Board of Health confirmed these findings. After a series of abortive commissions the Metropolitan Board of Works was formed in 1856 in order to tackle this immense problem. However, it was probably "The Great Stink" of 1858 that finally concentrated the mind of Parliament who voted through finance for the building of the intercepting sewer systems and the work began.

In South London three main sewers from Putney, Balham and Sydenham were built converging at Deptford. At this point the

effluent was to be raised 20ft into the Southern Outfall Sewer (11½ ft. in diameter), which still runs beneath Woolwich and then across Plumstead Marshes to a point downstream of Cross Ness on the Thames. The pumping station at Crossness, when it was built, contained the four largest rotative beam engines ever constructed. Each beam was 42ft long and weighed 47 tons while the flywheels were each 28ft in diameter and weighed 52 tons. Their purpose was to pump the effluent into a 25 million gallon reservoir whence it was released into the Thames as the tide began to ebb. If the tide was right the effluent was released directly into the river.

The building was a very attractive structure designed by the architect Charles H Driver in a Victorian Romanesque style with a pleasing mansard roof with small lucarnes on both frontages. On the river frontage there was a magnificent central doorway in a Norman style above which was a large turreted gable with a clock facing the river. The chimney, resembling a separated campanile, topped with an iron cowl, stood some 200ft high to the eastern end of the Boiler House. The Boiler House is attached to the southern side of the engine house and is formed with three roof bays. This building originally housed 12 Cornish boilers, which were later replaced, by 10 Lancashire boilers when the house was enlarged in 1897 ready for the engines to be compounded.

The pumps were built into the basement of the Engine House, being driven by the engines above. The original engines were built by James Watt & Co of Soho, Birmingham and were single cylinder engines driving two quadruple plunger pumps but in 1899 the engines were compounded for the LCC by Goodfellow's of Hyde in Cheshire into triple-expansion compound rotative beam engines each driving two enormous pumps pumping 6+ tons of sewage per stroke and it is these engines which can be seen today.

The main features of the buildings today are somewhat different from the 1865 structure. Sadly the mansard roof had to be replaced by a concrete roof and the building of another engine house, the Triple Expansion Engine House in 1897, had obscured the front of the building. Also the chimney was removed for safety reasons and the boiler house is much altered as the boilers were removed in 1957 and the interior developed as a series of workshops and stores.

However the interior of the Beam Engine House is little altered and the remarkable ornamental iron-work forms an outstanding feature against a background of the four huge engines: 'Victoria', 'Prince Consort' (now restored), 'Albert Edward' and 'Alexandra'. The polychrome brickwork of the building is also a significant feature and will be a splendid complement to the iron-work when it is cleaned.

The exterior of the Beam Engine House has retained several interesting aspects. The capitals on the window mullions have many variations including three showing faces one of which resembles Sir Joseph Bazalgette. The oak doors on the ends of the building are noteworthy as is the fine detail in the brickwork surrounding them. Behind the Boiler House at each end of the Garden terrace are two identical buildings. They are both Grade II Listed. The one at the east end of the garden is the original Fitting Shop and the one at the west end, The Valve House, at present a store, will feature a display of the other steam engines, which are part of the museum's collection.

Beyond the black palisade fence of the garden to the south, may be seen the top of the reservoir which now serves to hold storm water. There were once 20 houses for workers in a row on each side of the reservoir with the Superintendent's house at the far end. All these dwellings have been long since demolished.

Across the road from the Engine House is the Cooling Water pond and from beyond here a good view of the main buildings complex may be seen. The sheer size of these engines was what preserved them, as they proved to be too expensive to demolish when decommissioned in 1957. Although extensively vandalised over 30 years and allowed to fall into severe dilapidation the salvation of the buildings and engines came with their listing as Grade I by English Heritage in 1980. Soon after this a steering committee was set up under the Chairmanship of the General Manager of Thamesmead Town. The committee had representatives from English Heritage, the GLC Thamesmead Division, Bexley London Borough, the Greater London Industrial Archaeology Society, Thames Water Authority and Bexley Civic Society. In October 1984 a public meeting was called at Bexley Civic Offices to assess the viability of a restoration project. At the meeting it was agreed to set up the Crossness Beam Engines Preservation Group and restoration began in 1985.

The preservation and restoration of the buildings and engines is today in the hands of the Crossness Engines Trust (formed from the earlier preservation group), a registered charity run entirely by volunteers who work (at present) on two days per week to bring at least two of the engines back to life in the fully restored buildings.

Visits to the site are possible by appointment and the Trust is keen to recruit new volunteers to help with the restoration. For further information visit their web site http://www.crossness.org.uk/