

Stoke Newington Pumping Station, London N16

Analysis of a Building



1 Built on a raised site in the Scottish baronial manner, the Stoke Newington pumping station forms an impressive landmark on the Hackney skyline.

Towering like a medieval fortress over Green Lanes as it wends its way North from Newington Green towards Manor House, the magnificent Victorian pumping station of the now obsolete New River Company forms a much loved landmark for local residents and commuters alike. It is the product of an age when even the most mundane of service buildings might be given a style and flamboyance to rival those of major public buildings, in this case symbolising the country's progress towards a more sanitary and healthy environment.

During the nineteenth century, a host of Royal Commissions, Select Committees and largely unsuccessful Bills reflected public concerns over the quality of London's drinking water. But in an era of laissez-faire and antagonism towards centralisation, government attempts to bring the private water companies under greater control and to ensure a constant supply of water met with firm opposition. (Throughout much of the 19th century, many poor districts received water via a standpipe in the street that was turned on for only three to six hours a day). The capital's first cholera epidemic in 1831-2, which killed 6536 citizens¹, was followed by further outbreaks in 1848-9, 1853-4 and 1866, and although at the time the majority of people made no direct link between the disease and the water supply, as *illustration 2* shows, there were those who realised that polluted drinking water was the cause of much disease and suffering among the poor.

It was in this climate that Parliament finally succeeded in passing the Metropolis Water Act of 1852, prohibiting the abstraction of water from the River Thames below Teddington Lock (below which it was regularly polluted by sewage) and legally obliging all water companies to filter their water and store it under cover before distribution.



2 At a time when water was not widely linked to the spread of disease, this grim cartoon from Fun magazine of 1860, entitled Death's Dispensary, shows that some made the connection.

William Chadwell Mylne, Surveyor of the New River Company since 1811, had seen the writing on the wall and, despite his claim to a Select Committee of 1846 that he drank a glass of unfiltered water a day, had already advised his company in a letter dated 28th November 1850² that in response to public pressure it would be advisable to filter their water. It was in compliance with the Bill that the pumping station and accompanying filter beds on Green Lanes, Stoke Newington, were designed and built between 1852 and 1856.

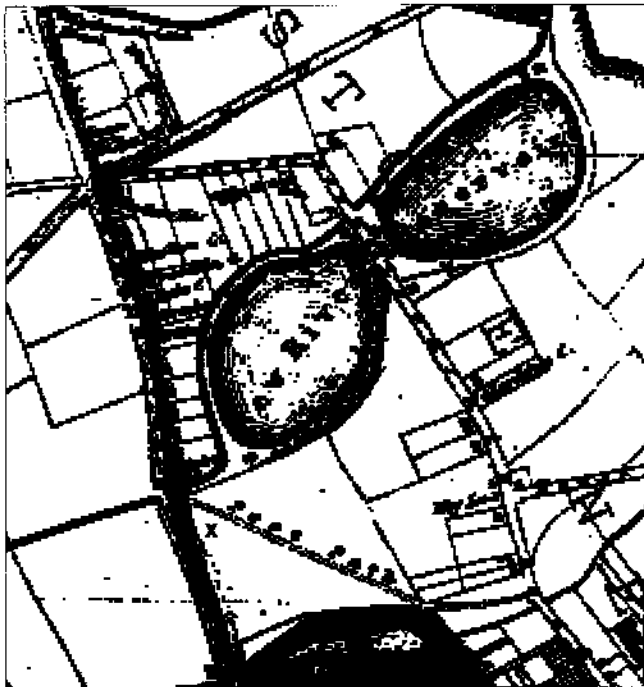
Unlike many of its rivals, who drew their water from the sewage infected reaches of the Thames, the New River Company drew its water from sources in Amwell and Chadwell in Hertfordshire and increasingly from the River Lea. The ^{New} river itself had been constructed 1609-1613 by the wealthy goldsmith and banker Hugh Myddleton in order to supply the city with fresh water. The New River Company was formed six years later, and by 1848 it was supplying 100,000 London homes with 24 million gallons of water daily³, with demand increasing as the city's population burgeoned. In 1831-33, Mylne had built two large reservoirs on the site of some old brickfields in Stoke Newington using stone from the demolition of old London Bridge to reinforce the banks. And it was adjacent to this site that the pumping station and filter beds were built.

At this time the reservoirs lay surrounded by fields on nearly all sides (*see map 1*), with only a number of houses to the west, running along Green Lanes. The few locals that existed, however, objected to the idea of an ugly industrial building in their vicinity⁴, and so the decision was made to 'disguise' the building as a medieval fortress.

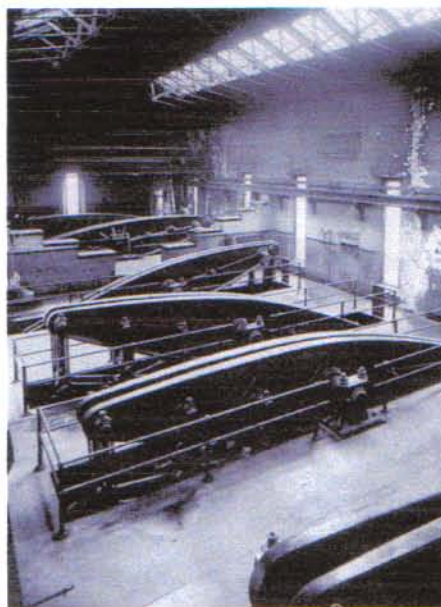
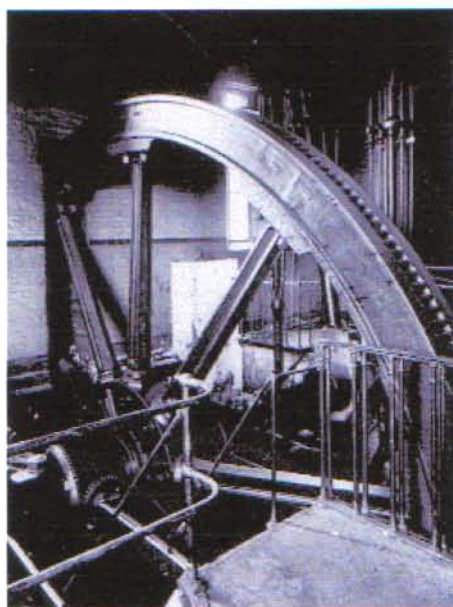
The choice of style was an unusual one. Later pumping stations, such as Bazalgette's elaborate design at Crossness, built ten years later, tended to be Italianate. But the choice seems less surprising when one considers that Holloway Prison, with its towering battlements, had recently been completed barely two miles away. Furthermore, Mylne was the eighth

generation in a long line of Scottish builders and masons, an ancestor being the famous Edinburgh stone mason Robert Mylne who had rebuilt Holyrood Palace in the 17th century. William Mylne was no stranger to the romantic appeal of Scottish castles!

The pumping station was built on an artificial mound in the corner of a field to the south of the western reservoir (*map 1*). In estimates submitted to the company in 1852, Mylne put the total cost of building the "engine establishment" at £81,500⁵. Lee and Sons were contracted to do the work, with Boulton & Watt supplying the six steam engines, with a combined power of 1000hp, and Simpson and Co supplying the pumping machinery.



Map 1: This map of 1848 marks with an x the site of the pumping station in a field just south of the reservoir.



3 An ingenious solution to restricted space – a portion of the massive flywheels are housed in the hollowed out buttresses on the front (western) wall.

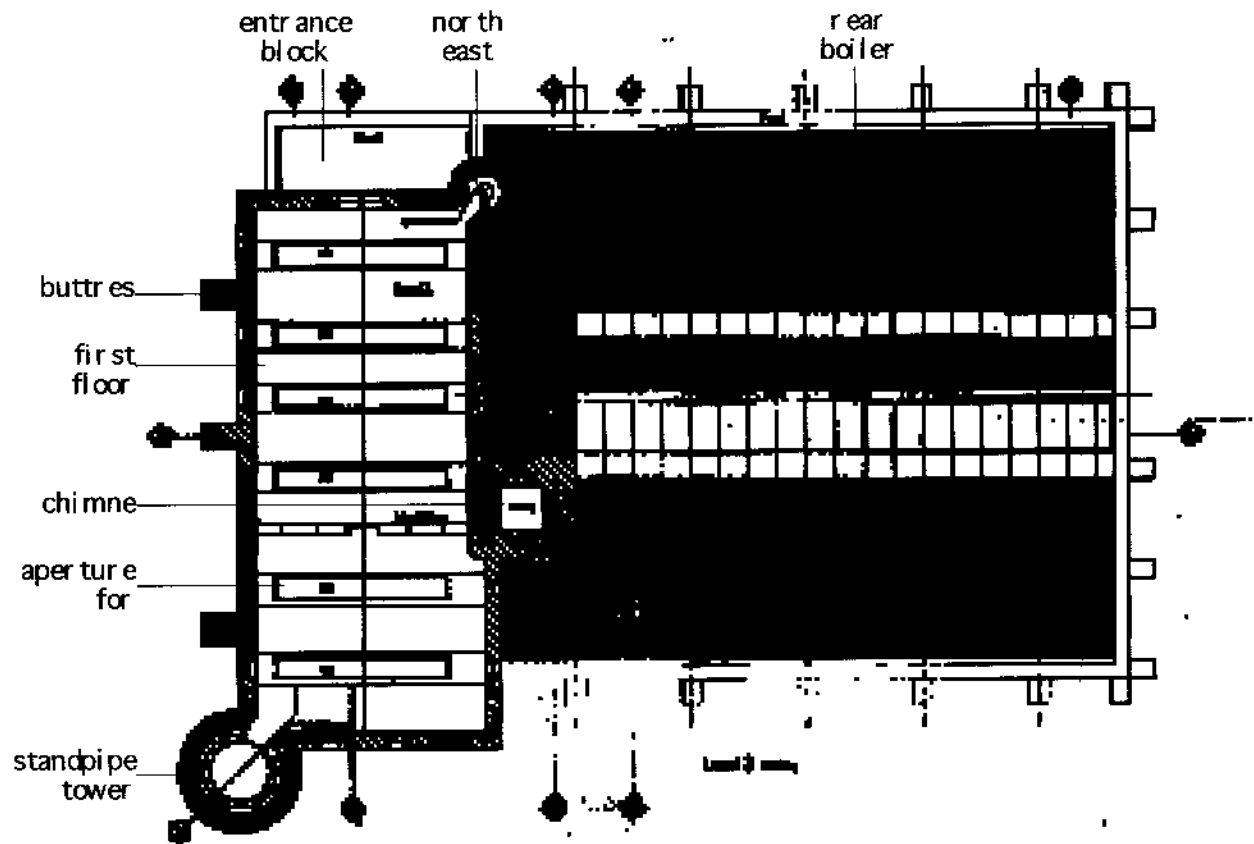
4 The mighty beams of the engines protrude through holes in the first floor level, allowing access for their maintenance and repair. Note also the glazing in the trussed roof, flooding the building with light.

Built economically of yellow stock brick with Portland cement dressing, the engine house is in the form of a heavily buttressed, castellated keep. A picturesque variety of towers and turrets thrust upwards from the battlements, and tall narrow windows add to the medieval effect. Each of the towers, however, has a specific function. The tallest – a 45.7m (150ft⁶) octagonal tower in the centre of the dividing wall between the engine and the boiler house – is the chimney shaft (*see illustration 5*). The 36.6m (120ft) circular tower in the south west corner ends in a rectangular structure designed to house a high level water tank for increasing water pressure. And the small turret with a conical roof on the north eastern corner houses an iron spiral staircase that gives access to the roof. Even the three stepped buttresses on the front elevation have a practical purpose other than mere support. Internally, each one is hollowed out to accommodate a portion of the massive flywheels (*see illustration 3*).

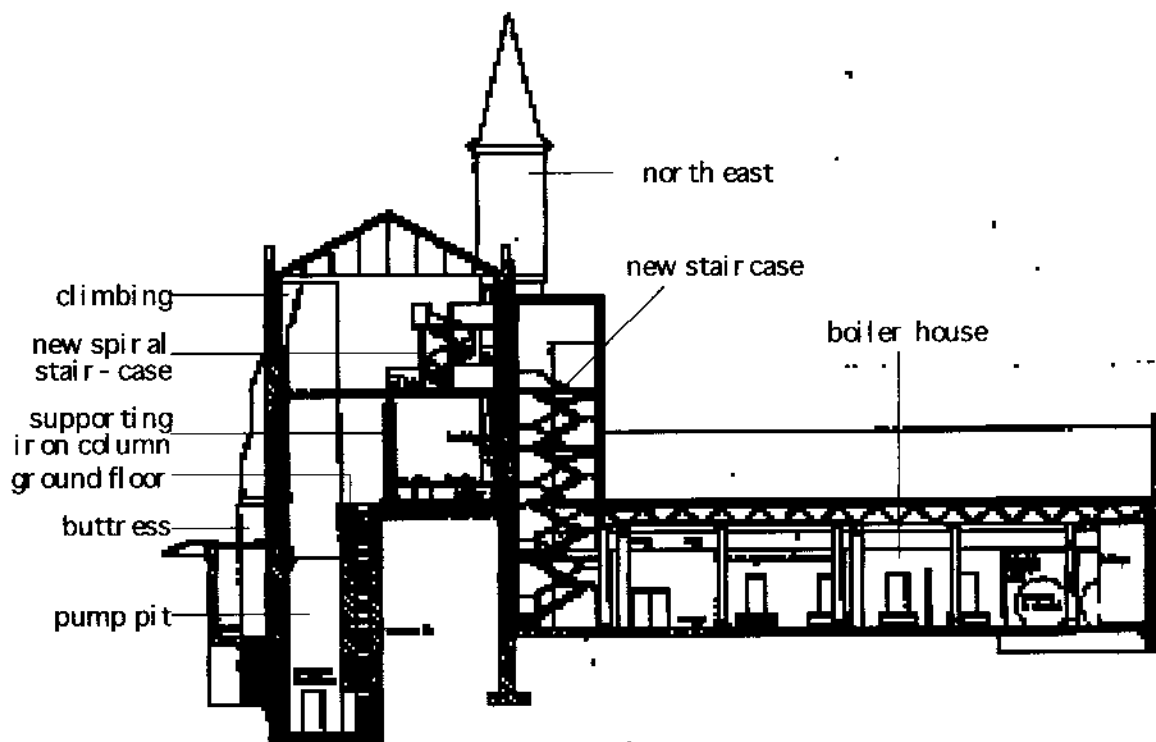
Added interest is provided by the battlements which crow step up towards the south west tower, and again on the north west corner. A string course incorporating an attractive cable moulding runs around the building beneath the battlements, and cast iron plaques incorporating Mylne's initials decorate the buttresses, reflecting the engineer's pride in his work. Several features including the crow-stepped battlements and the cable moulding can be seen in R.W. Billings' depiction of Falkland Palace, as published in the influential work *Baronial and Ecclesiastical Architecture of Scotland*, circa 1850⁷. Indeed, it has been suggested that Mylne employed Billings to design the building for him⁸.

Adjacent to the back of the engine house, and at a lower level (*see illustration 6*), lies the boiler house in a similar buttressed and crenellated style. Here were located the 16 boilers. Various outhouses included an office, fitting shop, smith's shop and coal store.

Internally, the engine house consists of one vast space, divided horizontally by an upper floor supported on a row of 12 iron columns and exposed iron cross beams. This first floor gave workers access to the rocking engine beams which protruded through long rectangular openings in the floor (*illustration 4*). To compensate for the restricted light entering via the narrow windows, the wrought iron trussed roof has glazed strips down both sides. From the



5 A plan of the first floor level shows the position of the two corner towers, the chimney and the six apertures in the flooring through which the beams protrude. Each buttress is precisely positioned between a pair of engines, to accommodate a portion of flywheel.



6 This cross section through the building, by Nicholas Grimshaw and Partners, shows the difference in floor level between the engine house and the boiler house. Also clearly shown are the deep pits which housed the pumps and the columns supporting the first floor. The climbing wall as built does not extend down into the pits as shown, and the first floor café and spiral staircase were never constructed.

ground level, pits sunk 8m down into the earth housed the pumps (*see illustration 6*). Inside the southwest tower, an impressive iron spiral staircase gave access to the high level water tank. It is cantilevered in from the wall, with no central support, creating a large void through which runs a massive standpipe, carrying water at high pressure into the main supply.

Contemporary interest in the building may be judged by a feature run in *The Illustrated London News* in 1856 which referred with pride to the “old Scottish castle” being the largest engine house built by a London water company at that time⁷. According to the article, the new work had added 40% capacity to the system and provided storage for five days water supply.

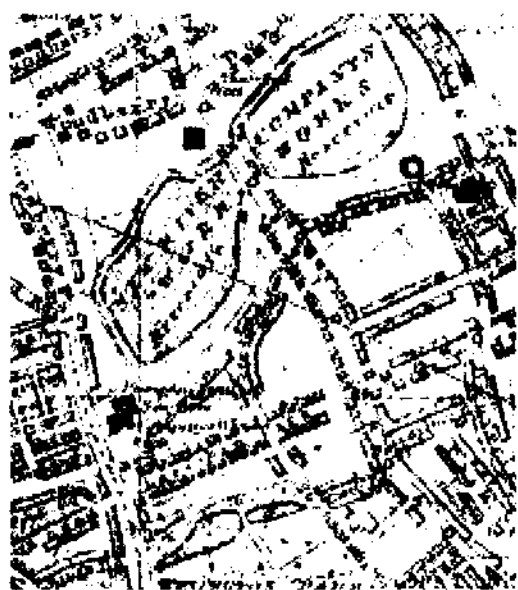
In the years following the construction of the pumping station, additions were made to the outhouses, such as the building of a new engine house in 1888, and the surrounding area was increasingly developed as London’s boundaries continued to expand. By 1880, the site was surrounded on all sides by residential homes (*see map 2*). In 1936 a primary filter house was built to the rear of the station, and about twenty years later workers cottages were constructed to the south. By this time, the mighty old beam engines and the boilers had been removed, having been superseded by modern diesel engines and electric pumps.

But for all these industrial developments and the encroachment of the city, few alterations had been made to the fabric of the building in over 100 years. In 1971, however, the Metropolitan Water Board, which had taken over control of the New River Company in 1904, applied to the local planning department for permission to demolish the now redundant building and develop the site. Letters flooded in to Hackney Council from local residents in defence of their ‘castle’, and the Victorian Society, the Hackney and Hornsey Societies and the GLC Historic Buildings Section joined in the fight to save the building. At times it must have looked like their appeals were falling on deaf ears. In response to one letter from the Victorian Society, a councillor replied “I do not consider (the buildings) have sufficient architectural interest for my council to support their retention⁹”. Nonetheless, in 1974 the pumping station

was listed Grade II*. But there still remained the problem of what to do with it.

The site came under threat once again in 1988 as privatisation of the water industries loomed, and proposals were made to sell off the reservoirs and surrounding land to developers for the construction of 1100 homes. Local MP Diane Abbott called a parliamentary debate on the subject on 24 February 1989, in which she referred to “a secret garden containing four listed buildings, including our own castle¹⁰”. Once more the site was saved, although this time the filter beds opposite were sold off for residential development, changing the character of the castle’s surroundings.

Finally, in May 1994, planning permission was granted for the redevelopment of the building as a

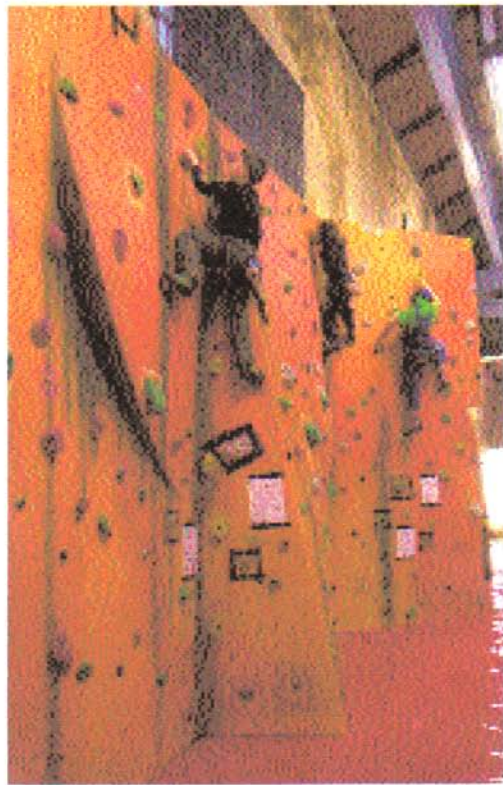


Map 2: As this map of 1880 shows, within 25 years of the construction of the pumping station, the site had become surrounded on all sides by residential homes.

climbing centre, provided, amongst other stipulations, that alterations carried out respected “the appearance, character and plan form¹¹” of the listed building and that all removed materials, such as iron beams, railings and flooring, be stored for future use.

The original plans, drawn up by architects Nicholas Grimshaw and Partners, featured two mezzanine floors in the main engine house, two new spiral staircases, a café with glass flooring and an aerobics studio with a glass wall. As built, the alterations were less ambitious. The open pits on the ground level were floored over and a coffee bar was built against the northern end of the east wall, supported on a portion of iron beam removed from the first floor level. To accommodate the 12m high climbing wall that runs along the western wall, concealing several of the windows, the flooring over the north west corner of the first floor level was removed and a number of iron beams cut back to the central axis. The iron railings were repositioned accordingly for safety. The southern end of the first floor level, however, which was originally planned as the aerobics studio, has remained untouched. Other climbing walls have been constructed in the boiler house (*see illustration 7*), amidst five old diesel tanks left over from former times, and a new wrought iron staircase replaces the original one connecting the boiler house to the engine house. According to an employee of the centre, despite extensive repairs to the rooves such as reslating the engine house roof, the boiler house roof still leaks lamentably!

For the present, this much loved building has been given a new lease of life as an indoor climbing centre and its short-term future is secure. But should the craze for climbing diminish in the long term and the building once again loose its *raison d’etre*, the search will be on once again to find a suitable function for this stunning “monument to Victorian engineering and architectural achievement¹²”.



7 The climbing walls are made of wooden panels coated in resin.

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1. The Great Stink, 1999, pp. 124
2. London Metropolitan Archives, letter from Mylne to New River Company dated 28 November 1850.
3. London Metropolitan Archives, cutting from *The Lancet*, 22 January 1848
4. *The Growth of Stoke Newington*, 1973, pp. 27
5. London Metropolitan Archives, report by WC Mylne to New River Company entitled *Works Executed by the New River Company pursuant to the Act of 1852*.
6. Dimensions taken from *The London Illustrated News* article, 22 November 1856
7. For illustration of Falkland Palace by Billings see *A History of Scottish Architecture*, 1996, pp. 18.
8. *Buildings of England – London 4*, 1998, pp. 540. It is interesting to note that this is the only reference made to Billings having been involved in the design of the building; other reference material, such as *A Guide to the Architecture of London*, 1983, refer to Mylne as the designer.
9. Hackney Planning Department, letter from Hackney Council to *The Victorian Society* dated 5 January 1972
10. *Hansard*, 24 February 1989
11. Hackney Planning Department, letter granting permission for planning by Hackney Environmental Services to Nicholas Grimshaw and Partners, 23 May 1994
12. Hackney Planning Office, architectural report by Michael Marland, 1972

