# How Bazalgette’s sewers and embankments saved Victorian London and reshaped its riverfront



Sir Joseph Bazalgette’s work reshaped Victorian London’s public health and its riverside silhouette. According to the Institution of Civil Engineers’ biography, Bazalgette, as chief engineer to the Metropolitan Board of Works, led the design and delivery of the London Main Drainage following the Great Stink of 1858 — a programme that transformed the city’s sanitation, unblocked the Thames and reconfigured large parts of the central metropolis. Contemporary accounts stress both the scale of the engineering intervention and the civic urgency that drove it.

The drainage system Bazalgette produced combined a long network of street sewers with a much smaller set of large intercepting sewers that carried waste away from central London. The Institution of Civil Engineers records about 1,300 miles of sewers in total, including 82 miles of west–east intercepting sewers, and names the principal pumping works — Abbey Mills at Stratford, Crossness and Deptford at the eastern outfalls, and the Western (Pimlico) pumping station — as key components of the scheme. Other sources describe the figures slightly differently: some accounts separate the main interceptors from the street sewers and record roughly 1,100 miles of street sewers in addition to the 82 miles of interceptors. Those differences reflect the way mileage has been counted in different historical summaries rather than a dispute about the system’s overall ambition.

The river embankments that accompanied Bazalgette’s sewer network were both functional and civic works. According to the ICE, the Victoria Embankment (opened 1879), the Albert Embankment (opened 1868) and the Chelsea Embankment (completed 1874) tidied the Thames’ mud banks, eased road traffic and produced new building land — ICE estimates the embankments reclaimed about 52 acres. The embankments also carried major sewers and utilities, knitting the drainage work into a wider programme of metropolitan improvement.

The pumping stations themselves were conceived as industrial monuments as well as utility buildings. Historic England’s listing for Abbey Mills records the Italianate/Italian Gothic detailing and the collaboration with architect Charles Driver on a cruciform plan, polychrome brickwork and ornate cast‑iron interiors; Crossness is listed at the highest grade for its Romanesque façade and lavish interior cast ironwork and for housing the original colossal beam engines. Historic England notes that these engine houses lifted sewage into the outfall sewers as part of Bazalgette’s system, and that later restoration work has sought to conserve their architectural as well as engineering interest.

Bazalgette’s influence extended beyond sewers to bridges and streets. The MBW, acting on recommendations that included Bazalgette’s input, acquired a series of privately owned toll bridges on the Thames in the late 1860s and 1870s, removed tolls and embarked on maintenance and replacement works; Bazalgette replaced Putney, Hammersmith and Battersea with bridges of his own design. The Board also undertook a programme of new streets to relieve congestion from horse‑drawn traffic: examples include Southwark Street (opened 1864), Queen Victoria Street (1871), Northumberland Avenue (1876), Shaftesbury Avenue (1886) and Charing Cross Road. British History Online’s Survey of London explains that Southwark Street was notable for the MBW’s compulsory purchase and demolition of about 400 houses and for the innovative subways built beneath the carriageway to carry gas, water, drains and telegraph wires.

On the personal side, ICE records Bazalgette’s birth on 28 March 1819 in Enfield, his marriage to Maria Keogh in 1845, and his family of six sons and four daughters; it also quotes the period description of him as “slight and square.” He was given a retiring allowance after stepping down in 1889 and died at his Wimbledon home on 15 March 1891. Biographical summaries and honours noted in contemporary obituaries and later histories underline the public recognition he received for what was widely seen as a civic salvation.

Bazalgette’s legacy is therefore both technical and civic: the mains and the embankments remade London’s relationship with the Thames, and the surviving engine houses have become heritage sites whose restoration has invited fresh public interest. Historic England records the architectural and engineering significance of Abbey Mills and Crossness and notes later conservation and reopening activity. Where modern sources disagree on exact mileage totals, historians attribute the variance to differing methods of counting — whether street sewers are aggregated with main interceptors or reported separately — but all accounts concur on the exceptional scale and durable impact of the MBW programme led by Bazalgette.

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## Reference Map:

* Paragraph 1 – [[1]](https://www.ice.org.uk/what-is-civil-engineering/meet-the-engineers/sir-joseph-bazalgette), [[3]](https://en.wikipedia.org/wiki/Joseph_Bazalgette), [[7]](https://en.wikipedia.org/wiki/Metropolitan_Board_of_Works)
* Paragraph 2 – [[1]](https://www.ice.org.uk/what-is-civil-engineering/meet-the-engineers/sir-joseph-bazalgette), [[2]](https://www.ice.org.uk/what-is-civil-engineering/meet-the-engineers/sir-joseph-bazalgette), [[3]](https://en.wikipedia.org/wiki/Joseph_Bazalgette)
* Paragraph 3 – [[1]](https://www.ice.org.uk/what-is-civil-engineering/meet-the-engineers/sir-joseph-bazalgette), [[3]](https://en.wikipedia.org/wiki/Joseph_Bazalgette)
* Paragraph 4 – [[4]](https://historicengland.org.uk/listing/the-list/list-entry/1190476), [[5]](https://historicengland.org.uk/listing/the-list/list-entry/1064241), [[1]](https://www.ice.org.uk/what-is-civil-engineering/meet-the-engineers/sir-joseph-bazalgette)
* Paragraph 5 – [[1]](https://www.ice.org.uk/what-is-civil-engineering/meet-the-engineers/sir-joseph-bazalgette), [[7]](https://en.wikipedia.org/wiki/Metropolitan_Board_of_Works), [[6]](https://www.british-history.ac.uk/survey-london/vol22/p90)
* Paragraph 6 – [[1]](https://www.ice.org.uk/what-is-civil-engineering/meet-the-engineers/sir-joseph-bazalgette), [[3]](https://en.wikipedia.org/wiki/Joseph_Bazalgette)
* Paragraph 7 – [[5]](https://historicengland.org.uk/listing/the-list/list-entry/1064241), [[4]](https://historicengland.org.uk/listing/the-list/list-entry/1190476), [[3]](https://en.wikipedia.org/wiki/Joseph_Bazalgette), [[2]](https://www.ice.org.uk/what-is-civil-engineering/meet-the-engineers/sir-joseph-bazalgette)

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## Bibliography

1. <https://www.ice.org.uk/what-is-civil-engineering/meet-the-engineers/sir-joseph-bazalgette> - Please view link - unable to able to access data
2. <https://www.ice.org.uk/what-is-civil-engineering/meet-the-engineers/sir-joseph-bazalgette> - ICE’s biography of Sir Joseph Bazalgette outlines his role as Chief Engineer to the Metropolitan Board of Works and his design of London’s nineteenth‑century main drainage system, built after the Great Stink of 1858. It summarises the network—about 1,300 miles of sewers with 82 miles of intercepting sewers—and names major pumping stations such as Abbey Mills, Crossness, Deptford and the Western (Pimlico) works. The article describes Bazalgette’s Thames embankments (Victoria, Albert and Chelsea), their benefits in reclaiming land and improving traffic, his influence on bridges and streets, and personal details including birth, marriage and retirement dates, honours and legacy noted.
3. <https://en.wikipedia.org/wiki/Joseph_Bazalgette> - Wikipedia’s entry on Joseph Bazalgette gives a comprehensive account of his life and engineering achievements. It records his birth in 1819, appointment as Chief Engineer to the Metropolitan Board of Works, and his central role in planning the London Main Drainage after the Great Stink. The article details the construction of 82 miles of intercepting sewers and c.1,100 miles of street sewers, the major pumping stations (Abbey Mills, Crossness, Deptford, and Western), and the creation of embankments. It covers his work on bridges and new streets, honours such as CB and knighthood, and his death in 1891, public legacy noted.
4. <https://historicengland.org.uk/listing/the-list/list-entry/1190476> - Historic England’s listing for Abbey Mills Pumping Station records the Grade II\* Victorian sewage works at Abbey Lane, Stratford, built 1865–68 for the Metropolitan Board of Works. It names Sir Joseph Bazalgette as engineer and Charles Driver as architect, and describes the Italian Gothic design, cruciform plan, polychrome brickwork, domed lantern and ornate cast‑iron interior. The entry notes that the original beam engines have been removed and explains the pumping station’s function lifting sewage into the Northern Outfall Sewer as part of Bazalgette’s London Main Drainage. The page highlights the building’s architectural quality and historic importance and national engineering heritage.
5. <https://historicengland.org.uk/listing/the-list/list-entry/1064241> - Historic England’s listing for Crossness Pumping Station records the Grade I Victorian engine house opened in 1865 and engineered by Sir Joseph Bazalgette. The entry documents the building’s Romanesque architecture by Charles Driver, the three‑bay yellow brick façade, and the interior’s important cast‑iron decorative treatment and four colossal beam engines by James Watt and Co. It places the station at the eastern end of the Southern Outfall Sewer and describes its original role in raising sewage for discharge downstream as part of the London Main Drainage. The listing notes Crossness’s historic and industrial significance and its restoration and public reopening.
6. <https://www.british-history.ac.uk/survey-london/vol22/p90> - British History Online’s Survey of London chapter on Southwark Street explains how the Metropolitan Board of Works obtained powers in 1857 and cleared about 400 houses to form London’s first MBW street. Completed in 1864, Southwark Street introduced innovative subways beneath the carriageway to carry gas, water, drains and telegraph wires. The account details the compulsory purchase, demolition and redevelopment that produced large commercial buildings during 1864–75, and notes awkward plots caused by intersections with older streets. It places the work in the context of mid‑Victorian metropolitan improvement, emphasising the MBW’s practical engineering solutions and civic ambition.
7. <https://en.wikipedia.org/wiki/Metropolitan_Board_of_Works> - Wikipedia’s Metropolitan Board of Works article summarises the MBW’s role as London’s metropolitan authority from 1856 to 1889, overseeing major infrastructure projects including Bazalgette’s sewerage, embankments and street improvements. It records the creation of 82 miles of main sewers and about 1,100 miles of street sewers, and notes the Board’s programme to acquire privately owned toll bridges on the Tideway from 1869 under the Metropolis Toll Bridges Act, removing tolls and carrying out maintenance and reconstruction of bridges such as Putney, Battersea, Hammersmith and Waterloo. The entry discusses MBW’s activities, achievements and controversies leading to its replacement by the LCC.