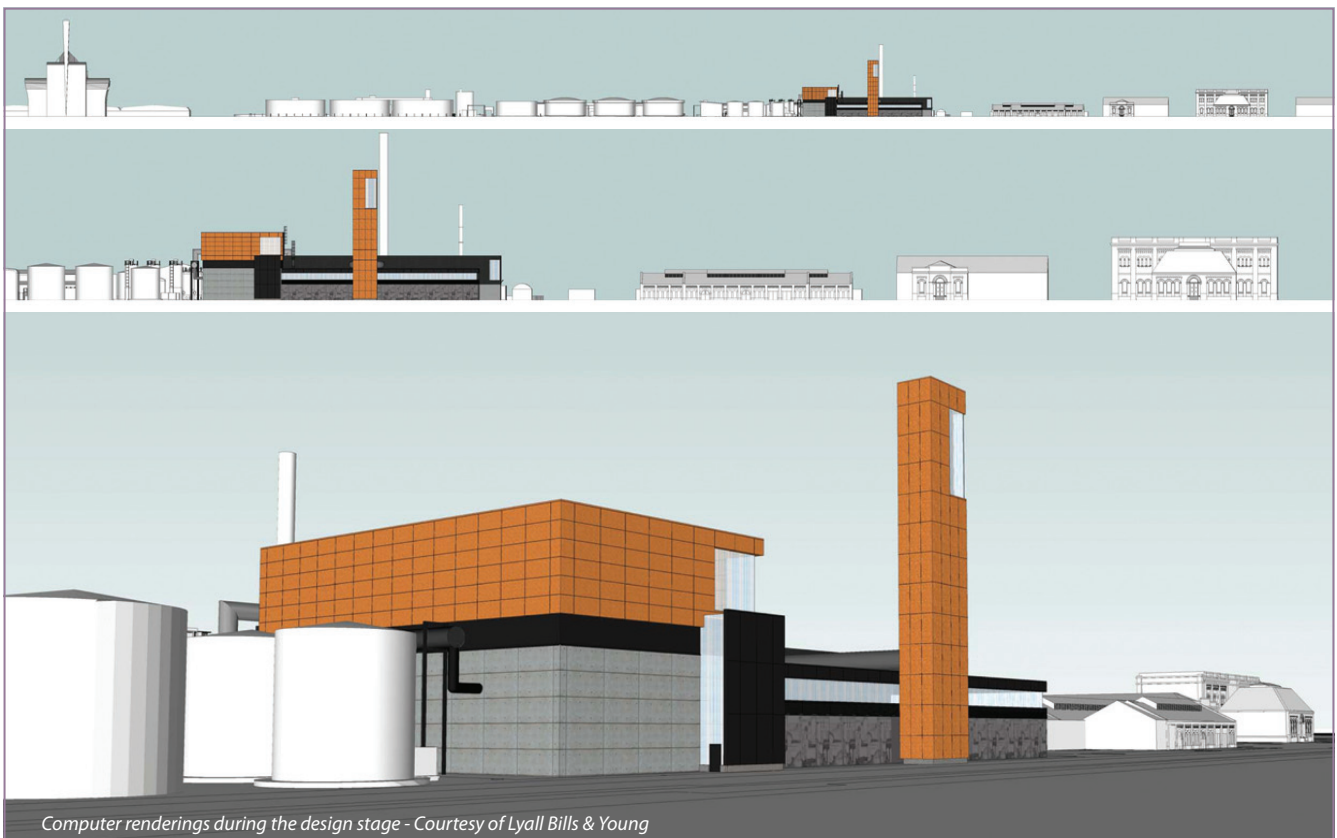


Crossness STW

architectural design of the main sludge processing and distribution building

by John Lyall & Chris Bills

Readers of UK Water Projects may have seen recently the articles about the new STW scheme being commissioned at Crossness in London. Having described the engineering involved, the architecture of the plant is also worth telling, as it concerns a trend for better-looking, better-designed buildings on infrastructure sites in the UK. Architects Lyall Bills & Young were appointed first by Thames Water, then by the Laing O'Rourke/Imtech consortium to design the main sludge processing and distribution building. This work followed the architects' award-winning success designing four very different water and sewage installations to great acclaim on the Olympic Park in 2012.



Computer renderings during the design stage - Courtesy of Lyall Bills & Young

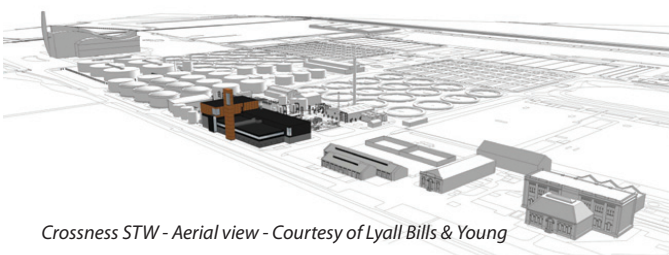
Crossness Enhanced Digestion Plant

At the outset, Thames Water needed exceptional architecture at Crossness as the new building would be a tall and wide presence on the south bank of the River Thames, and would be sited adjacent to the listed, and historic Victorian pumping station designed by Sir Joseph Bazalgette.

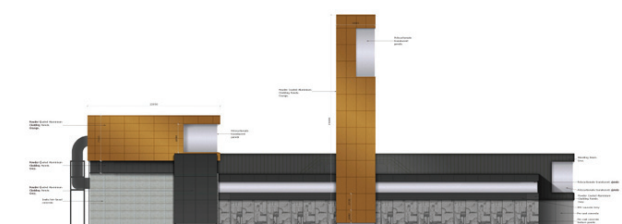
The Crossness Enhanced Digestion Plant is a sludge-cake storage and dewatering facility. The building houses the final stages of a process which renders sewage sludge into fertiliser cake.

The cake is stored in the building before being freely distributed to farmers who arrange pick-up in convoys of articulated trucks. The cake material is added to fields as fertiliser, providing a valuable and sustainable use for what was once considered as waste.

An imaginative cluster of roof forms has been created in response to the appointed Architects, Lyall Bills & Young, studying and understanding the functional processes inside the building, requiring different heights, and organised in three main lateral zones of activity.



Crossness STW - Aerial view - Courtesy of Lyall Bills & Young



The proposed riverside elevation - Courtesy of Lyall Bills & Young



The building has a dense and exciting composition of rectangular walls and corners, with a blend of tough, heavyweight materials at low levels, and more lightweight materials higher up, punctuated by careful use of glazing and louvres. The massing is intended to give a controlled, mannered and timeless expression to what is a large and important new addition to the Thameside landscape.

The building is divided into distinct zones to reflect the processes inside: the cake storage areas, the belt press hall and the loading bay (see plan). The belt press hall on the first floor houses the processing plant and welfare facilities.

External appearance

Lyall Bills & Young's design had to meet with the approval of conservation officers at English Heritage, and the design officer at Bexley Council's planning department. Models, 3-D views within the site context and display of materials were all important considerations to obtain the planners recommendation for assent.

Externally, the scheme is underpinned by a strong, linear composition of concrete walls, surmounted by dark grey cladding panels. However, the largest 'block' at the eastern end and the tall, rectangular flue casing facing the river, are both high-lighted by the finish of bright iridescent orange panels of 'Alucobond', creating a cheerful, expressive statement on the waterfront.

Large openings of translucent polycarbonate glazing punctuate the building in various key areas. These openings allow daylight to penetrate at high level to main working zones, and glowing with artificial light at night. A similar in-set panel of glazing shines out at night at the top of the tall rectangular orange flue, enhancing the building's 'landmark' status on the Thames.

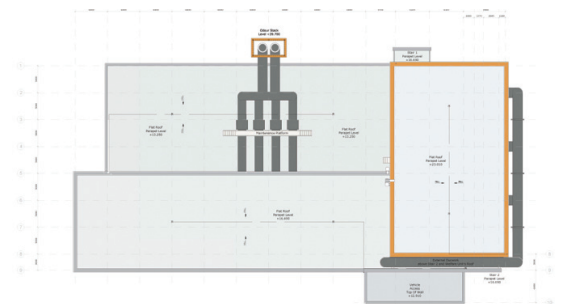
Closer up, the precast concrete panels on the riverfront elevation (visible to pedestrians on the tow-path), are etched with Victorian engineering drawings from the nearby historic pumping station. This echoes a technique which the practice pioneered in their successful circular pump house at Pudding Mill.

Good value and environmental impact

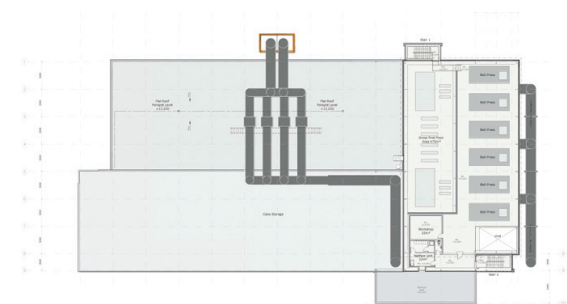
Once again, Lyall Bills & Young have demonstrated how good architecture can add value, without increasing costs, and enable a complex engineering installation to be welcomed by planners, historic conservationists and the public.

The building not only creates a dignified, but modern, companion to Bazalgette's 19th century triumph, especially when viewed from the river, but enables Thames Water to be justifiably proud of one of their latest contributions to London's infrastructure.

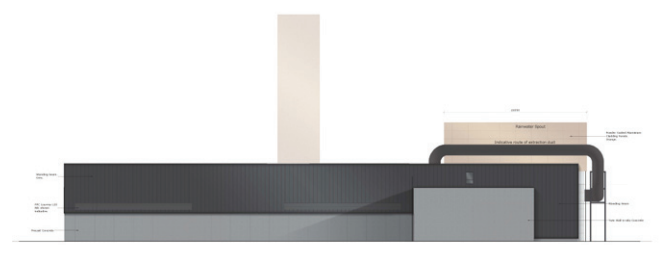
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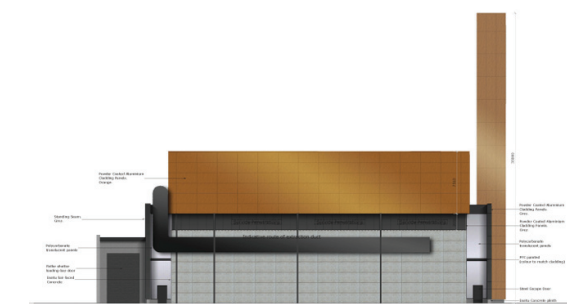
Roof plan - Courtesy of Lyall Bills & Young



Upper level plan - Courtesy of Lyall Bills & Young



The rear land-side elevation - Courtesy of Lyall Bills & Young



The belt press hall full elevation - Courtesy of Lyall Bills & Young



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