A part of Melbourne's history lives again

PETER CHRISTOFF

PROJECT  Spotswood Pumping Station, Straining Wells, Spotswood

CLIENT  Melbourne and Metropolitan Board of Works

ARCHITECT  Richardson Christoff Pty. Ltd.  
            Peter Christoff (partner-in-charge)

Spotswood Pumping Station began sewage pumping late last century. It was built to help overcome the immensely hazardous problems created in the densely populated industrial areas of Melbourne, where waste collection had degenerated into foul-smelling sloughs and cess pits, and where the gutters ran with all types of noxious industrial waste from slaughter houses, breweries, tanneries and factories.

The original proposal called for two pumping stations, once of which was to be located near what is now South Yarra railway station. This alternative, however, was abandoned and a single pumping centre established near Williamstown on the banks of the Yarra - a once-beautiful river which had become the city's main sewer.

The site of the pumping station was part of a crown grant to John Stewart Spotswood on 119 acres, for which he had paid some 154 pounds on 26 August 1847. The Melbourne and Metropolitan Board of Works, which had been formed in 1888, bought the site in 1892 and began building the pumping station there almost immediately. (The site was originally chosen so that a wharf could be built for coal delivery; this did not eventuate and a rail siding was built instead).

The years 1888 to 1898 saw the rapid expansion of sewerage in Melbourne. Spotswood Pumping Station (Fig.1) carried all metropolitan Melbourne's sewage, pumping it to an outfall sewer and then on to Werribee. The original plant comprised four steam units, each rated at 300 h.p. and each with a capacity of 8,000,000 gallons a day. (Fig.2) Electricity, the relatively new source of energy at that time, was restricted to supplying light to the huge complex, above and below ground. As the workload increased, so did the power plants until by 1914 ten steam engines pumped 80,000,000 gallons a day. By 1921, with even greater pumping capacity needed, electric power was introduced. This progressively replaced the steam units until in 1938 it had almost completely taken over, although four steam engines were retained in full working condition for emergency use.
Fig. 1 Spotswood pumping station, exterior, undated.
Illustration: Melbourne and Metropolitan Board of Works
Fig. 2 Spotswood, interior, undated.
Illustration: MMBW
Fig. 3 Interior of straining well building, with straining equipment visible at rear.
From the outset the pumps were considered a technological marvel, and because they had to remain in constant operation no risk of damage from hidden solids could be taken. Straining wells were thus built at the north and south ends of the four hectare site to strain solids (tins, stones, timber and so on) from the wastes before they reached the pumps. The wells, almost seven metres in diameter, each contained two straining cages, one of which was always in position. It is the charming octagonal buildings which sit above the wells which have been restored. (Fig.3) These date from 1897 and were extended in 1926.

The Brooklyn Pumping Station opened in 1964 and Spotswood was closed down the following year. (Even so, the sewer still passes through much of the original linework at Spotswood). Around 1980 the MMBW, concerned to maintain the historic buildings - not only for their intrinsic merit but for their significance to the history of the Board and of Melbourne itself - asked us to inspect and evaluate the existing condition of the straining well buildings, giving primary emphasis to maintenance works needed to make them weatherproof.

Although first impressions indicated that the buildings were reasonably sound, investigation soon revealed significant parts of their structural members were badly rotted and the roofs were in danger of collapse. The theft of the lead flashings and gutters around the time the buildings had been vacated was probably the major cause of decay. The corrosive atmosphere at Spotswood, with its surrounding industry and seaside location, had badly affected stonework and timbers, with the less durable elements being badly decayed, allowing weather entry and speeding up the process of decay. (Fig. 4).

We decided to examine every piece of timber in each structure - a tall order with the intricate detailing of the roof supports and the lanterns. The Board made available a cherry picker with driver, but it proved so hazardous operating thirteen metres up in the air with a driver unused to the delicate movements needed to let us check the timbers in the confined space that we learned to drive the machine ourselves. Many weeks went into this on-site analysis, assessing and recording the state of each building element, using moisture tests and probing, and bringing in experts to offer advice.

It became clear that the original design had been at fault in taking no proper measures for water prevention where the bottom truss members sat on the brickwork. We debated with ourselves whether, after repair of the rotted sections, this feature should be rectified in a deviation from established restoration philosophy. In the end, after consulting with the Historic Buildings Council, we decided to take the simple remedial measures of encasing the problem sections in waterproof pockets so as not to negate the benefit of the new work. (This utilised the CSIRO-developed DIMET 7 decay preventive treatment for timber.) In the same way, and again after discussions with the HBC, we decided to replace the lost lead gutters with Butynol-lined, galvanised guttering to the original profile. In ordinary circumstances we would have agreed to re-using lead, but this was not a situation where continued surveillance of the building could be guaranteed, and we felt lead gutters could be stolen again with disastrous consequences for the new work.
Figs. 4, 5  Roof condition before restoration
A few bricks needed replacing in the walls, particularly the shaped bricks which had to be specifically made above the windows. About sixty per cent of window and door joinery needed repair or replacement; wherever possible we reassembled old parts. The upper lanterns looked extremely sound at first but proved to be about seventy percent defective. We were able to salvage some of the wooden louvres, but all the glass louvres had gone. We saved most of the structural timbers here to redo infill work, and new Baltic pine lining boards were imported from Sweden. All gutters and flashings were replaced, and new cast iron downpipes made. For these as many pieces as possible were salvaged for patterns - we also used original drawings and early photographs - but it took a long time to locate a tradesman capable of producing them to a fine enough profile. We salvaged all the roof slates for re-use but needed around fifteen per cent extra because on one building, some slates had been replaced with galvanised iron.

It must be remembered that the buildings stand over a labyrinth of tunnels, eaves, pipes and other cavities, some extending as major shafts twenty metres below the level of the river. The floors of the building were in reasonable condition, but so light in structure that they would not have withstood the spot loads imposed in straightening up the buildings and repairing their roof structures, so a series of timbers had to be spread out to distribute the load more evenly. Propping, strutting and splicing the new members into the existing structure was a precise operation requiring great skill and exactitude in the setting out, to ensure minimum destabilisation of the major part of the structure. The end bearing sections of the timber members had to be replaced on ninety per cent of the trusses. This involved replacement of the bottom cords of the trusses in all cases, to an extent of between 600mm & 1200mm and likewise the top cords of eighty percent of the trusses. Extensive use was made of the CSIRO's excellent facilities to develop experimental techniques with Liquid Plastics Co. Pty. Ltd. for preserving and restructuring decayed timbers with fibreglass rods and epoxy resin; this was not proceeded with due to prohibitive costs and to the degree of disruption of the original materials which would have ensued.

Early colours were identified in the Board's own laboratories, with the original colour scheme - principally green, cream and brown - being established and reapplied.

Soundings and cleaning samples were prepared in defined areas to enable future evaluation of their efficacy and suitability for these buildings in the prevailing atmosphere and environment. We found, however, that the simplest and most effective measure was detergent washing with a soft brush. Some segments of the stone copings (the Waurn Ponds limestone will present the major problem in the future) have been treated with Silane Consolidants using saturating coats of TEGOVAKON V and other similar treatments.

The pumping station holds a special fascination for the Williamstown and Spotswood communities - many local families have had a long work-based association with the buildings. We enjoyed much input from the locals, and rapport with them and we found the buildings developed quite a hold over us as well. (Fig.6) There's a seeming paradox between their basic function, their muscular presence in such a prominent foreshore position, and the delicacy of their form, trusswork and detailing. They are quite glamorous - a feature observed by the film and television producers who over the years have used the whole Spotswood complex for location work.
Fig. 6 The project team at Spotswood (Peter Christoff, right foreground)

The project, carried out in 1981-82, showed us the benefit for restoration work of putting the maximum time into evaluating the buildings and seeing how they fitted together. Our aim was neither to make new materials look old, nor to make the completed buildings look new, and in this I believe we succeeded.

No use has yet been found for the restored buildings, nor for the rest of the complex, which is beginning to deteriorate and needs, at the very least, maintenance. It is to be hoped this work can begin soon so that the buildings may once again bear out the Board's 1897 description:

'...the pumping station at Spottiswoode is completed ...the portions above ground are of creditable appearance and not unworthy of their prominent position upon the banks of the river which...has been so effectively improved and redeemed from foul sights and smells....'