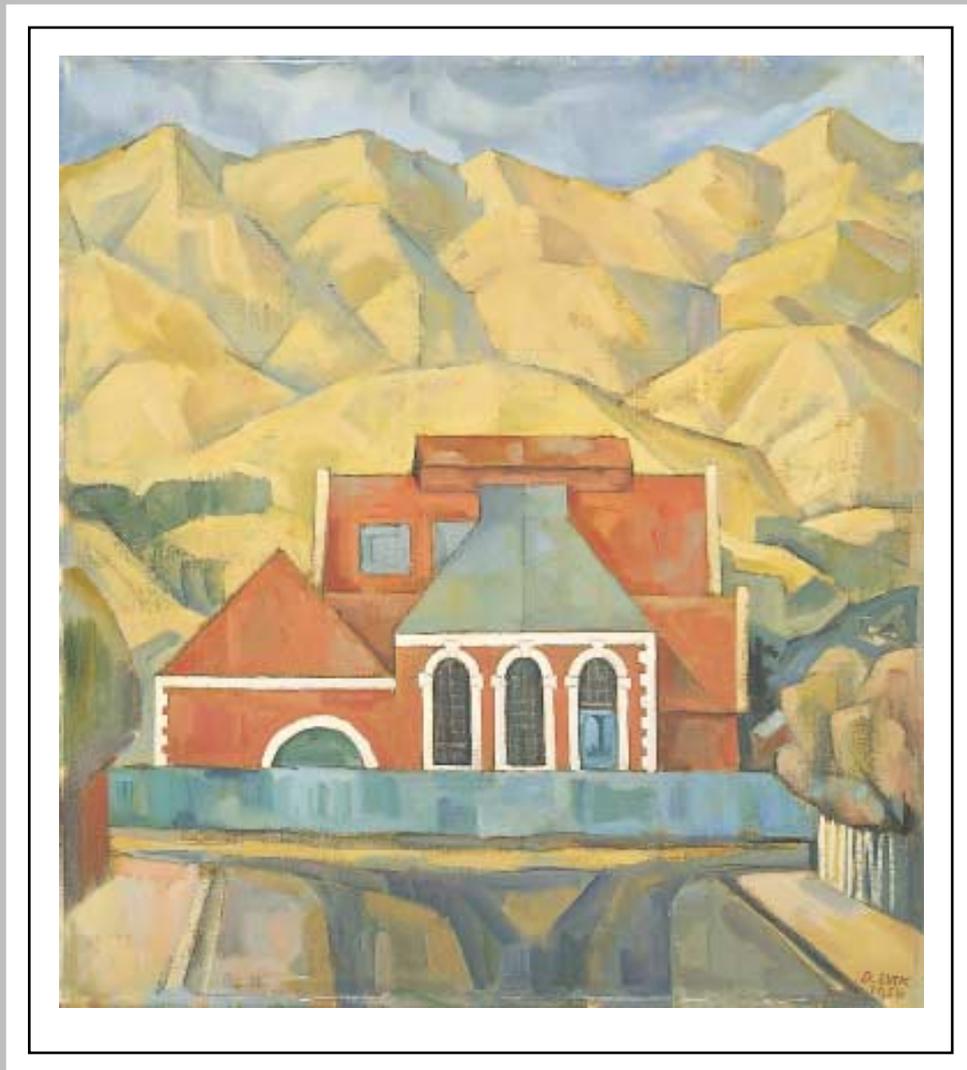


THE ARCHITECTURAL HERITAGE OF CHRISTCHURCH

10. Pavilions, temples & four square walls Christchurch pump houses and substations





Preface

The features of Christchurch today are to a large extent those of the built environment. The charm of the city essentially depends on the buildings, places and objects planned by people over successive generations. The quiet dignity of the city owes much to its early buildings. It is still possible to trace the early European built history of Christchurch in the many fine examples of colonial architecture that remain. Action by the City Council, the New Zealand Historic Places Trust Pouhere Taonga and other public interest groups has saved a number of important city buildings including the The Rose Chapel (former Sisters of Mercy Chapel), the Sydenham Methodist Church, the former convent of the Sisters of Our Lady of the Missions (now the Music Centre, the Nurses Chapel, the former University (now the Arts Centre) and the former Government Building in Cathedral Square.

As the City grows and changes, there is a danger that buildings of historical or environmental value may be thoughtlessly or needlessly destroyed. Though the Christchurch City Plan lists almost 600 historic buildings places and objects, many of our heritage buildings have survived by good luck rather than good management. The survival of our heritage buildings is largely determined by understanding their social and architectural

history and thus their significance within their own community or to the city as a whole. Many buildings are lost when they simply fail to continue to meet the requirements of the community they were built for. Although the City Plan and the New Zealand Historic Places Trust Pouhere Taonga encourage the preservation of historic buildings and objects it is essentially the determination of the community that effectively protects and revitalizes buildings it considers important.

One of the major aims of the series, *The Architectural Heritage of Christchurch*, is the identification and description of the city's valuable historic buildings in the hope that greater public awareness of their importance will increase their chance of survival. Even if preservation should prove impossible in some cases, the series gathers information, illustrations and analyses of each building to provide a published record of the city's rich architectural heritage.

If these booklets encourage you to think about the historic significance of Christchurch architecture, and help you to recognize the special value of the city's historic buildings, then they will have served their purpose.

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Introduction

It is easy to overlook the small brick and concrete pump houses and substations that punctuate the streets of older suburbs and bring essential services to our homes. Closer examination, however, reveals that these little structures are important pieces of the city's architectural and social history, meriting as much study as our more prominent heritage buildings.

The drainage and sewage pump houses and electricity substations were erected among the suburban homes and gardens they serviced. While their interior and subterranean features mainly concerned engineers and technicians, their design and location often attracted strident criticism because of their impact on the suburban landscape.

Although some utility buildings were designed by trained and qualified architects, many appear to have originated from the draughting offices of the Municipal Electricity Department (MED) and Drainage Board. MED substation drawings, for example, invariably bear the names of E J Marriner and R M Jenkin, draughtsmen whose careers with the MED stretched

through the first half of the twentieth century. Whether draughtsmen or architects, the designers of utility buildings had to consider competing demands of economics, technical requirements and public opinion within a context of changing architectural fashions.

An essential element of the traditional European approach to architecture, imported into New Zealand from Victorian England, was the question of decorative style. Buildings could be presented in the guise of classical temples, Gothic cathedrals or Venetian palazzi. In New Zealand, this philosophy remained dominant until the 1950s when the impact of modernism, extolling architectural "honesty", made decoration an anathema.

This booklet presents a selection of Christchurch pump houses and substations, including some never built and some that have been demolished. It also looks at the issues and controversy influencing their architecture over the first half of the twentieth century.

Drainage and electricity services transform city

The appearance of pump houses and substations in the city's landscape announced the introduction of drainage and power. These two major public amenities signified the transition of Christchurch from a small town with rudimentary services to a progressive city ready for the twentieth century.

In *Christchurch, Swamp to City: A Short History of the Christchurch Drainage Board*, John Wilson documents some of the problems the young city faced as it expanded. Its low, flat, waterlogged site was particularly challenging from a sewage and drainage point of view. Achieving sufficient fall for sewers and stormwater drains to flow by gravity was the main difficulty. Poor drainage of storm water and sewage disposal were, by the 1870s, a serious threat to health. The energy subsequently put into the development of a co-ordinated, city-wide drainage system made Christchurch the best drained and sewered city in New Zealand, and an example for cities overseas.

The first stage was the construction, during the 1880s, of pipelines that took sewage from the city by gravitation to holding tanks beneath the No. 1 Pumping Station in Tuam Street, Linwood. From there it was pumped to the sandhills of Bromley and spread over what soon became the productive Bromley Sewage Farm.¹ By the turn of the century extensions were required to the system of sewer lines to service further suburban areas and in the early years of the twentieth century four new pumps were built. Whereas the massive Tuam Street pump was steam-driven, the new smaller pumps were powered by electricity generated by steam from the city's refuse 'destructor'. It had been supplying a substantial amount of electricity to areas of the city since 1903.

Christchurch City Council had agreed in 1898 to establish a supply of electric power for public and private use and for street lighting. Steam generation of electricity from the 'destructor' was a small-scale beginning to this project, which eventually led to the Council's decision to generate hydro-electricity from Lake Coleridge. This progressive and innovative scheme was taken over by the Government and in 1910 became the first major hydro-electric power scheme in New Zealand. The Lake Coleridge plant was formally opened on 25 November 1914 and started supplying electricity to local bodies.



Family group

Canterbury Museum

Distribution to consumers was managed via a network of substations throughout the city and suburbs connected by underground cables.² Power reticulation proceeded rapidly.

Households connected to electricity and the sewage system were ushered into a new era of domestic comfort and efficiency. Electric power was cheaper and cleaner than coal or gas and the benefits of electric lighting, irons, ranges, vacuum cleaners and well-lit streets were widely promoted. Sewage and household waste could be disposed of quickly and cleanly, heralding the end of night soil collections and the contamination of waterways with household waste.



Promotional sketch for early electric vacuum cleaner

Canterbury Museum

For £5 Per Year
YOU MAY HAVE
Abundant Hot Water
For all Domestic Purposes
All Day and Every Day.
YOU MAY ALSO
AVOID THIS!



BY USING A
Vale Quick Recovery Electric Cylinder
Advice and Information gladly given by the Makers
Vale & Coy. Ltd.
141-3 Armagh Street.
Sole Manufacturers QUICK RECOVERY CYLINDERS. P.O. Box 1386. PHONE 2976.

Electricity advertisement c.1927

Canterbury Museum

¹ John Wilson (1989). *Christchurch, Swamp to City: A Short History of the Christchurch Drainage Board 1875-1989*, Christchurch: Te Waihora Press, p.10

² Mark Alexander (1990). *Christchurch City of Light*, Christchurch: Southpower, p.39

Evolution of Pumping Stations

Tuam Street, No. 1 Pumping Station

Today the sturdy red brick building at the Linwood end of Tuam Street is surrounded by an assortment of recycled materials. However, the salvage yard's name, The Pump House, reflects its past importance as the cornerstone of the city's earliest sewage system.

British engineer William Clark required a "plain inexpensive building" to house the engines and pumps which would pump the sewage in 61 centimetre cast iron pipes to Bromley. After the Christchurch Drainage Board adopted his scheme in 1878 Clark, who had returned to England, sent detailed plans for the pumping station and sewage tank underneath.³

Construction of the sewage collecting tank with a diameter of 9.14 metres and depth of 6.4 metres was a major challenge in the saturated soil. However, No.1 station finally started pumping sewage in 1882. Later, considerably enlarged, it continued to play a key role in the disposal of city sewage until 1957, when the Drainage Board opened a new pumping station in Pages Road.

No. 1 station was used as a maintenance depot until the 1980s when the Board "vacated its most historic site, where the city's sewage system was born".⁴ Since then it has housed a business selling recycled building materials.

The utilitarian brick structure with multiple gabled roofs and restrained classical detailing has distinctive arched windows and doors. It is captured in two paintings by Christchurch artist Doris Lusk. Her Pump Station (1958) is in the collection of the Auckland City Art Gallery and a 1970 painting of the same building is in the Victoria University Collection, Wellington.⁵

The 19th century utility building is listed as a Group 3 heritage building in the City Plan and is registered as a Category 2 building by the New Zealand Historic Places Trust Pouhere Taonga.



The Weekly Press 3 Feb 1897

Picturesque pump houses adorn the River Avon

By the early 1900s it was becoming clear that the Drainage Board would soon need more pumping stations. Reticulation was reaching the boundaries of the areas that could be served by gravitation into the sewer tank at the original pumping

station in Tuam Street. A second pump was placed underground by the Avon River (Otakaro) opposite the Public Library (now Library Chambers) in Hereford Street. The next three pumping stations were erected on the riverbank downstream.

³ Wilson, p.21

⁴ Wilson, p. 58

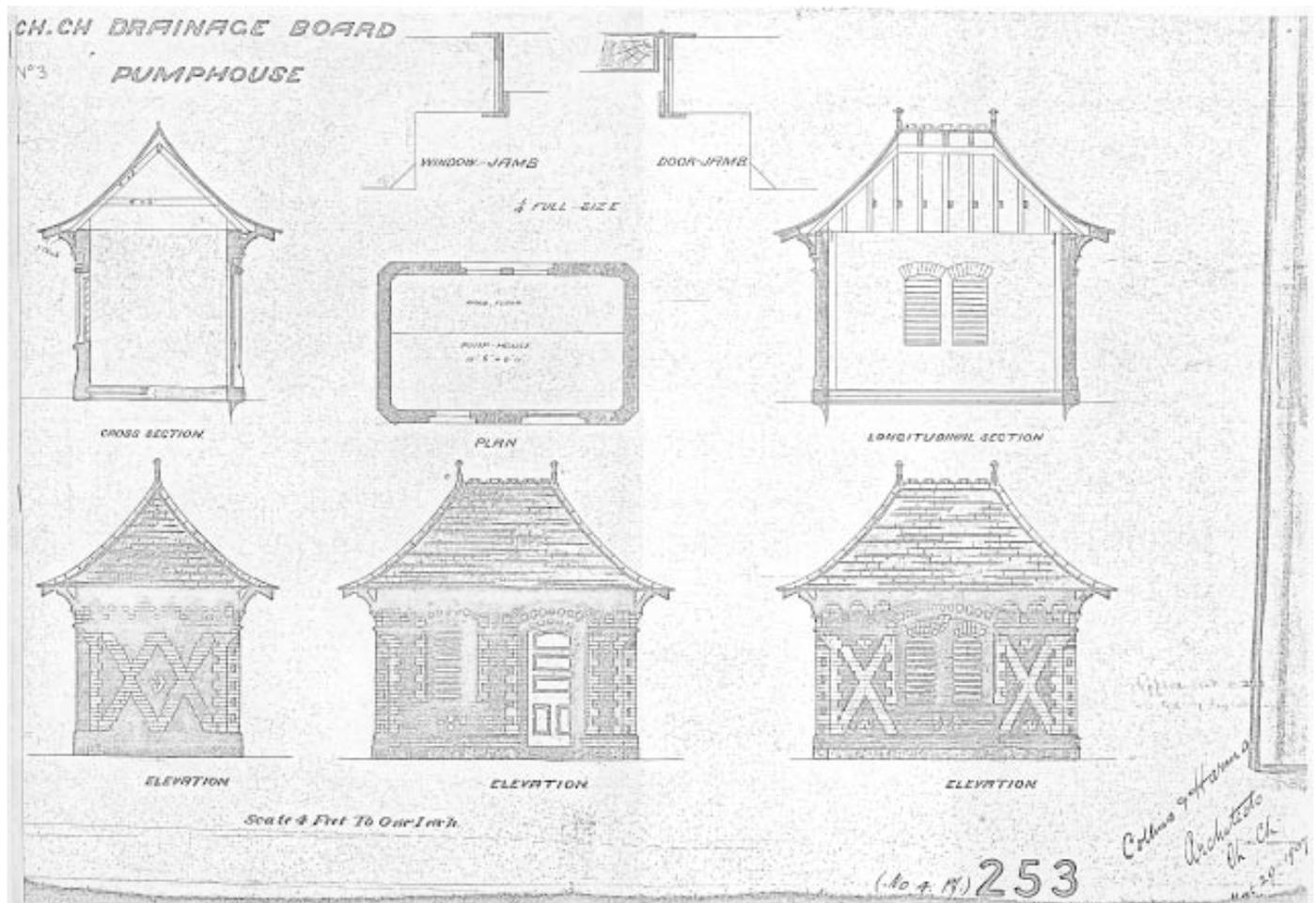
⁵ The Press, 26 October 1996

Bangor Street No. 3 Pump (1907)

The third pumping station was built at the junction of Oxford Terrace and Bangor Street in 1907. This well-known landmark, in harmony with its riverbank setting, was designed by architectural firm Collins and Harman. It is listed as a Group 3 heritage building in the City Plan.

No. 3 pump was presented in the guise of an ornamental pavilion to overcome the problem of incorporating a utilitarian building into a residential area. The plan and elevations show

a simple brick structure, rectangular in plan with chamfered corners and richly decorated with polychromatic brickwork, ornate wooden brackets, and a curved pavilion roof of slate with cresting and finials. The built version has square corners and less elaborate brickwork, while the roof has subsequently been given a bituminous coating and the finials have been removed. Still evident, however, is the string course of moulded bricks forming a cornice, and the contrasting colours of glazed bricks creating the effect of voussoirs and quoins, and varied façades.



Architects' drawings of Bangor Street No. 3 Pump

⁶ See David Jenkins, *Architectural Brickwork*, London 1990

Manufactured locally since the 1880s, mechanically-produced brick was then a modern industrial material which was replacing wood or stone for commercial and public buildings. The use of polychromy is evidence of the retention, into the Edwardian era, of a decorative treatment fashionable in Britain and Europe some 50 years earlier.⁶

Templar Street No. 4 Pump (1911) and Glade Avenue No. 5 Pump (1914)

The two later pump houses in this series were smaller and less elaborate versions of the same picturesque harmony of architecture and natural setting. Built in 1911 and 1914, the pump houses on the riverbank at Templar Street and Glade Avenue employ two colours of smooth-face bricks, with the addition of two string courses of dark bolstered brick. They still retain some other original features such as the slate roof and finial.



Templar Street No.4 Pump detail

Pump houses: ornamental yet functional

A major, new sewer extension scheme requiring 24 new pumps was begun in the mid-1920s. Construction of the new pump houses was announced by Gothic Lines, a weekly commentary in *The Press*, with the article "New pumping stations: ornaments to the city" on 15 January, 1927.

After reminding readers of the "unsightly concrete substations" which had been built in the city, the reporter stated that he "was impressed by the ornate superstructure, and the result achieved by a little sympathetic treatment in drawing the plans".⁷ Just as it had 20 years earlier, the Drainage Board sought outside architectural advice, in this case from the local partnership of Dawe and Willis.

Dawe and Willis, with their experience in public utility architecture within the City Council to draw on, produced two stylistic themes for the Drainage Board: a clean-lined combination of Art Deco Moderne with restrained detailing, and a series of "pavilions" in a neo-Georgian idiom popularised for domestic architecture by Helmore and Cotterill and Cecil Wood.

Pump houses had a distinct advantage when it came to fitting into their suburban environment. The main functional areas of a pump house - the circular holding tanks and much of the pump mechanism - were contained almost entirely underground. The superstructure, needing only to provide enough room for equipment to be moved in and out and for service people to move around, could conform to the scale and proportion of a residential area. The necessarily large site provided the opportunity to plant trees and shrubs, in line with the "garden

suburb" ideal that had by then been adopted by many local bodies.

Matai Street, Pump No. 24 (1926)

In the neo-Georgian idiom, Matai Street's pump house combines areas of plain, red brick with white-painted concrete plastering creating the "stone" corner pillars. Other features include wide eaves, a hipped slate roof and a decorative ventilation turret. A characteristic shared with the remains of the Woodham Road pump house is the classical detailing which, reduced to simple geometric relief shapes and applied to the pillars and frieze, suggests that these two pump houses were of similar design and construction.

Although the Matai Street pump in the grounds of the Chateau Regency has been decommissioned it has fortunately been preserved by the hotel. Like the Bangor Street pump house, it resembles an ornamental pavilion and continues to enhance the character of its park setting. The pump house is listed as a Group 4 heritage building in the City Plan.

Harrison Street, Pump No. 6 (1927), Stapletons Road, Pump No. 7 (1927), Chelsea Street Pump No. 9 (1928) and Smith Street, Pump No. 12 (1928)

Further variations of the neo-Georgian pavilion were built at Harrison St, No. 6, and Stapletons Road, No. 7, both in 1927, and, in more compact scale, at Chelsea Street, No. 9, 1929, and Smith Street, No. 12, 1928. Surrounded with modest, bungalow-style homes, each is set in landscaped grounds with a low, brick fence.



Matai Street, Pump No. 24



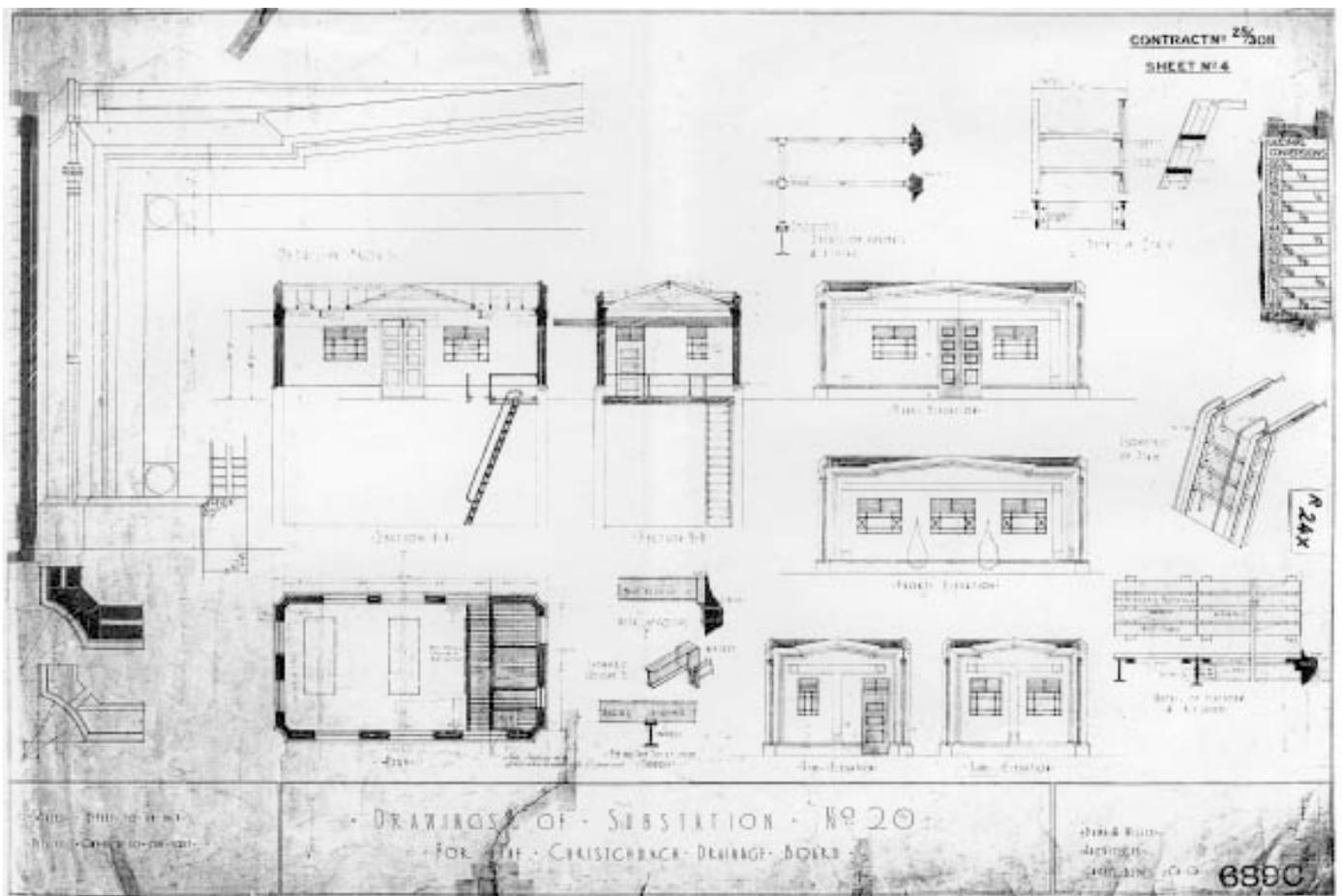
Stapletons Road, No. 7

⁷ *The Press*, 15 January 1927

Dawe and Willis's Drainage Board pump houses

Locarno Street, Pump No. 20 (1927)

This design, identical to Pump No. 8, Retreat Road, is described as "the plainest but it was not difficult to see that an attempt had been made to design something in keeping with the surroundings".⁸ Its small scale and height is appropriate for a residential area. The exterior treatment is a smooth stucco finish over brick construction, with linear detailing based on classical elements. Relief moulding delineates a flattened broken pediment, while re-entrant corners accommodate down-pipes capped with pointed rainhoods. All elevations are relieved by a T-shaped relief form. Though now obscured with protective wire mesh, the steel-framed windows with diagonal mullions and opaque glass added a homely quality to Art Deco clean lines.



⁸ Alexander, P.55



Randolph Street, Pump No.11



Detail, Randolph Street, Pump No.11

Randolph Street, Pump No. 11 (1927)

This modification of the Art Deco Moderne idiom, combining areas of brickwork and plastered finish, was hailed as “an architectural gem” by Gothic Lines who drew attention to its architectural historical references: “The piers are in the English style, and a gothic parapet surrounds the roof”. Willis was recalled as being “fond of the twiddly bits”⁹ and a Baroque-style, moulded ornamentation on the street elevation reflects this.

Woodham Road, Pump No. 10 (1927)

Of this structure *Gothic Lines* wrote that it “might have made an excellent pattern for some of the petrol bowser stations in the city. Large stone pillars at the corners support a hipped roof of Welsh slate, with copper guttering”.¹⁰ The original building, set back about 50 metres from the street line, was abandoned and the plans lost when it was superseded by construction of the new No. 1 pumping station on the corner of Woodham and Pages Roads. Little is left of it now but a strangely evocative “antique” ruin hidden by a high fence. What remains is of interest because it clearly shows the reinforced, cast concrete gutter, eaves and frieze constructed as a unit and still intact. The rest of the structure has disappeared.



Remains of Woodham Road, Pump No. 10

A later addition

Pages Road, Pump No. 36 (1950)

Architect George Griffiths produced drawings for the second Pages Road pump house, now replaced. They show a brick-veneered, reinforced concrete structure with a flat roof and windows in a continuous band directly beneath the eaves. A reliable flat roof had been made possible through the development of new building materials, in this case “Neuchatel Mastic Asphalte”, which increasingly influenced building design. A similar structure to the Pages Road Pump still stands in Keyes Road, New Brighton, and was built by N T Webb in 1950 for £1292.



Architects' drawings for Pages Road, Pump No. 36

⁹ *The Press*, 15 January 1993

¹⁰ *Ibidem*

Pump house designers

J J Collins and R D Harman

John James Collins (1855-1933) and Richard Dacre Harman (1859-1927) were probably the first New Zealand-born, educated and trained Christchurch architects. They were both articulated to William Barnett Armson, one of the most talented and prolific architects in early Christchurch, and after his death in 1883 the pair continued his practice. In 1903 John Goddard Collins (1886-1965) joined his father's staff, followed in time by John Kempthorne Collins (1916-1983). After 123 years of practice the firm finally closed in 1993, having played a major role in the architectural development of Christchurch, Canterbury and New Zealand. Examples of their work still standing today include Strange's Buildings, High and Lichfield Streets (1893-1903), The Christchurch Press Buildings, Cathedral Square (1906), Curator's House, Botanic Gardens, Rolleston Avenue (1919) and the Sign of the Takahe, Hackthorne Road (1934).



J J Collins



R D Harman

A Century of Architecture, Collins & Son

C R Dawe and H F Willis

Charles R Dawe and H Francis Willis had first worked together in the draughting office of the Christchurch City Council. When Willis rejoined the Council as Assistant City Engineer in 1920, Dawe was City Surveyor and Engineer. In October 1924, having resigned from the City Council, the pair formed a partnership which lasted until 1928, when Willis went into practice on his own. Their work included the reinstatement of the Civic Theatre, Manchester Street (1928) and the Sydenham Fire Station, Colombo Street (1929).

Willis (1893-1972), subsequently the better known of the two partners, was responsible for a remarkable diversity of styles for public and private buildings in Christchurch over the 1920s and 1930s. These included the Clock Tower and Telephone Cabinet, Oxford Terrace (1929), Radiant Hall - now the Repertory Theatre, Kilmore Street (1929), New Regent Street shops (1932), and Santa Barbara, Victoria Street (1935).



Christchurch Press buildings

Canterbury Museum



C R Dawe



H F Willis



Clock Tower and Telephone Cabinet, Oxford Terrace

Hocken Library, Dunedin

George Davidson Griffiths (1907-1971)

Having trained in architecture in New Zealand, Griffiths travelled to England in 1933 and the following year was awarded a travelling scholarship to the United States. He returned to New Zealand prior to the war and commenced private practice in 1945. The many commercial and public buildings he worked on include shopping malls at Merivale, Brighton, Timaru, Barrington and Ilam. He also designed ANZ Bank buildings throughout Christchurch, Riccarton Borough and Paparua County Councils' offices, Post and Telegraph Workshops and Surf Life-Saving Clubs. He was also a City Councillor. His firm survives today as Griffiths, Moffatt and Partners.



G D Griffiths

Evolution of electricity substations

By 1917, just three years after the opening of the Lake Coleridge hydro-electric power station, the Electricity Department had built 24 substations supplying the city, St Albans, Linwood and Sydenham. The Ferry Road structure is one of the few surviving substations from the early period of electricity reticulation.

Ferry Road, Woolston Park, MED Substation (c.1914)

Until its amalgamation with Christchurch in 1921, the Woolston Borough took its power directly from Government supply to the substation on Ferry Road at Woolston Park.¹¹ Existing records do not reveal the architect, if any, involved in the design of the building. The exterior is, however, a skilful exercise in decorative brickwork, clearly the work of a bricklayer familiar with such techniques. Texture and variation of form are produced by polychromy and the manipulation of standard brick shapes. A band of four rows of bolstered brick above the foundations visually anchors the structure to its base. Two string courses of dark bolstered bricks, banded by smooth-faced cream brick, circle the building, while alternating cream and red bricks form quoins and voussoirs around the door. The parapet and pediment are emphasised by a row of cream bricks laid at 45 degrees to create a saw-tooth effect. The corners are extended out to form pilasters, which are capped by rudimentary capitals of brick.



Woodham Park MED Substation

Good utilitarian buildings - absolute abominations - nice little palaces

By the 1920s, the proliferation of unattractive and obtrusive electrical substations in residential areas began to attract intense public criticism and debate. The City Council and its Electricity Department were accused of disfiguring the city.

In 1921, when a new substation was required for the St Martins-Opawa area, the MED requested permission to use a triangular grass plot at the intersection of Ensors and Opawa Roads. This triangle of land had already been set apart for "beautifying". Despite the MED's proposal that the structure could be surrounded by a few trees and shrubs and special attention would be given to its architecture, local residents protested and suggested other sites. An alternative site was not decided upon until industrial land on Ensors Road became available.

The following year, a proposal by the Electricity Committee to erect a substation in the avenue of trees at the intersection of Fitzgerald Avenue and Armagh Street was rejected at a meeting of the City Council on 14 August 1922. Concern was expressed that the Opawa wrangle would be repeated. Councillor E H Andrews declared that he was "not satisfied that such unbeautiful buildings, which were now dotted throughout the city, should be erected on streets, and particularly among trees".¹² Even Mayor H T Thacker denounced the practice of placing electricity substations on the streets as "an eyesore". One councillor labelled them "an abomination" while another declared that when "he saw the first sub-station he wondered whether it was a dog kennel or a morgue".¹³

In its defence the MED pointed out both the difficulty and expense of obtaining suitable sites and the extra cost of more aesthetically pleasing buildings. Rules dictating proportion and scale imposed constraints on the design of substations: an interior height 3.65 metres was necessary for switchgear and transformer equipment and to allow for safety clearance. High



Ensors Road MED Substation

¹¹ Alexander, p.55

¹² *Lyttelton Times*, 15 August 1922

¹³ *Ibidem*

foundations accommodated cables and ventilation ducting and matched the height of a truck deck when equipment had to be moved.

The MED was not as oblivious to public dissatisfaction as some believed. Its 1924 annual report stated:

In connection with the growing supply, a situation of considerable difficulty has developed, owing to the inability to obtain a sub-station site in the neighbourhood of the Council Chambers. The proposal to erect a sub-station on the River Bank, near the Council Chambers, gave rise to a good deal of opposition, despite the Department's offer to provide a building of attractive design at a cost difficult to justify for such a purpose.¹⁴

Although the proposal did not proceed, a watercolour perspective view (below) shows the substation was intended to complement the architecture of the neighbouring Municipal Council Chambers (1887) designed by prominent Christchurch architect Samuel Hurst Seager.

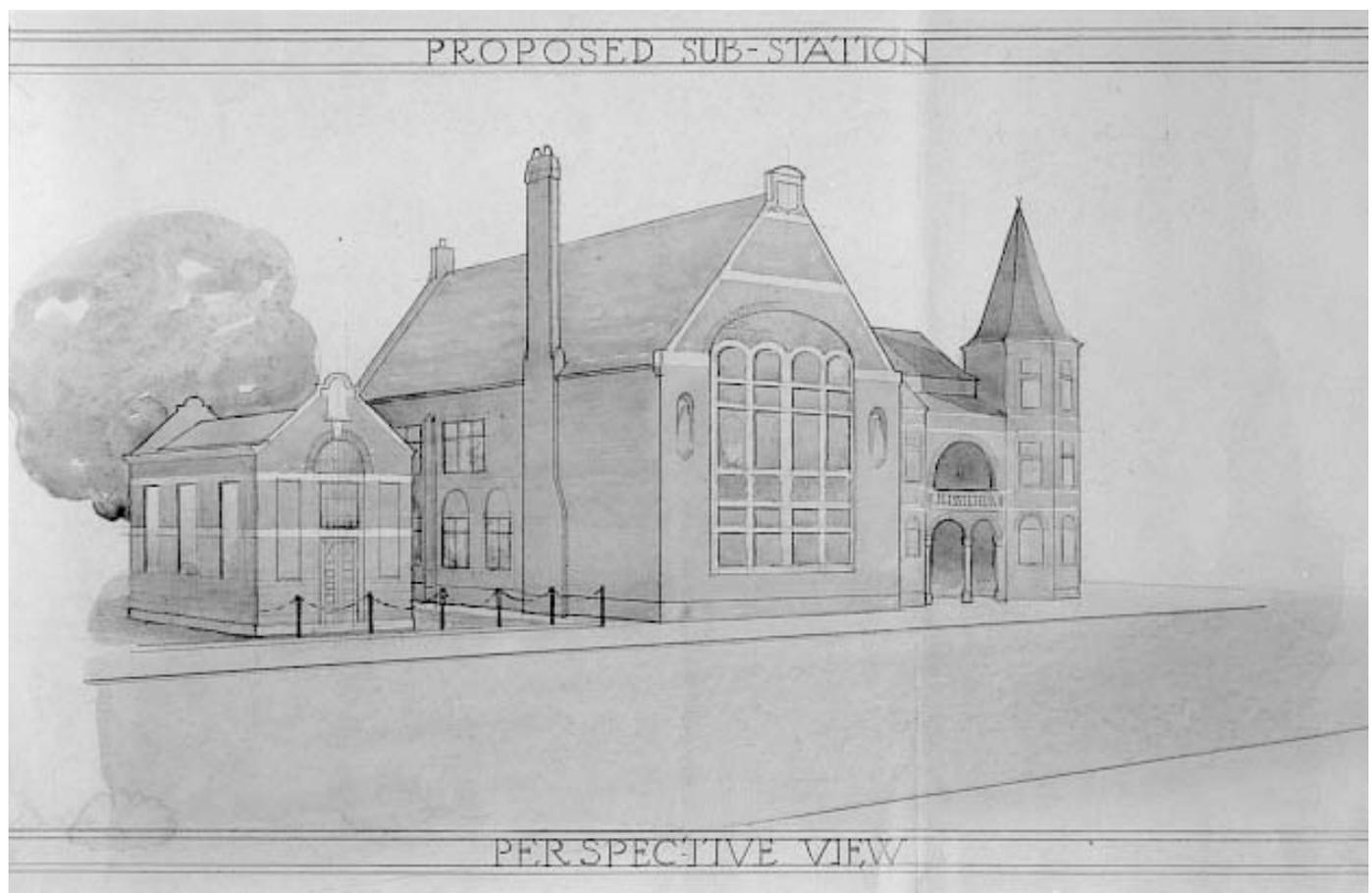
Solutions to the problem of designing bulky utilitarian buildings for residential areas were sought from other municipal bodies sharing the same concerns. During the 1920s, examples of substations in Sydney, Australia, were photographed to illustrate the response of the Sydney electricity department to the issues of context, scale, placement and architectural style. While one option was to disguise the utility as a small house, complete with pitched, tiled roof, front porch and non-functional windows, the Spanish colonial style imported from California and used widely in Australian domestic and commercial architecture of the period was generally adopted.



Substation, Sydney



Spanish colonial style substation, Sydney



¹⁴ MED Annual Report 1924

A sheet, undated and unsigned, of drawings of three flamboyant Art Deco facades with historicist details is further evidence of the MED's concerns and efforts. The suggested facades probably originated from outside the department as they do not make allowance for practical requirements of substations such as minimum height.

In a flattering 1927 commentary on new pump houses designed by Dawe and Willis, Gothic Lines anticipated that the City Council would adopt similar designs for substations erected on the same sites. Beginning with Woodham Road, several MED substations were subsequently designed to complement or were clearly derived from the Dawe and Willis pump houses.¹⁵

As Mark Alexander states, the MED from the 1920s to the late 1960s remained an extremely formal, traditional, convention-based organisation.¹⁶ While the services and the advantages it provided were modern and progressive, the utility buildings of the MED, permanently on view in the streets of the city and suburbs, maintained an image of enduring respectability and decorum.

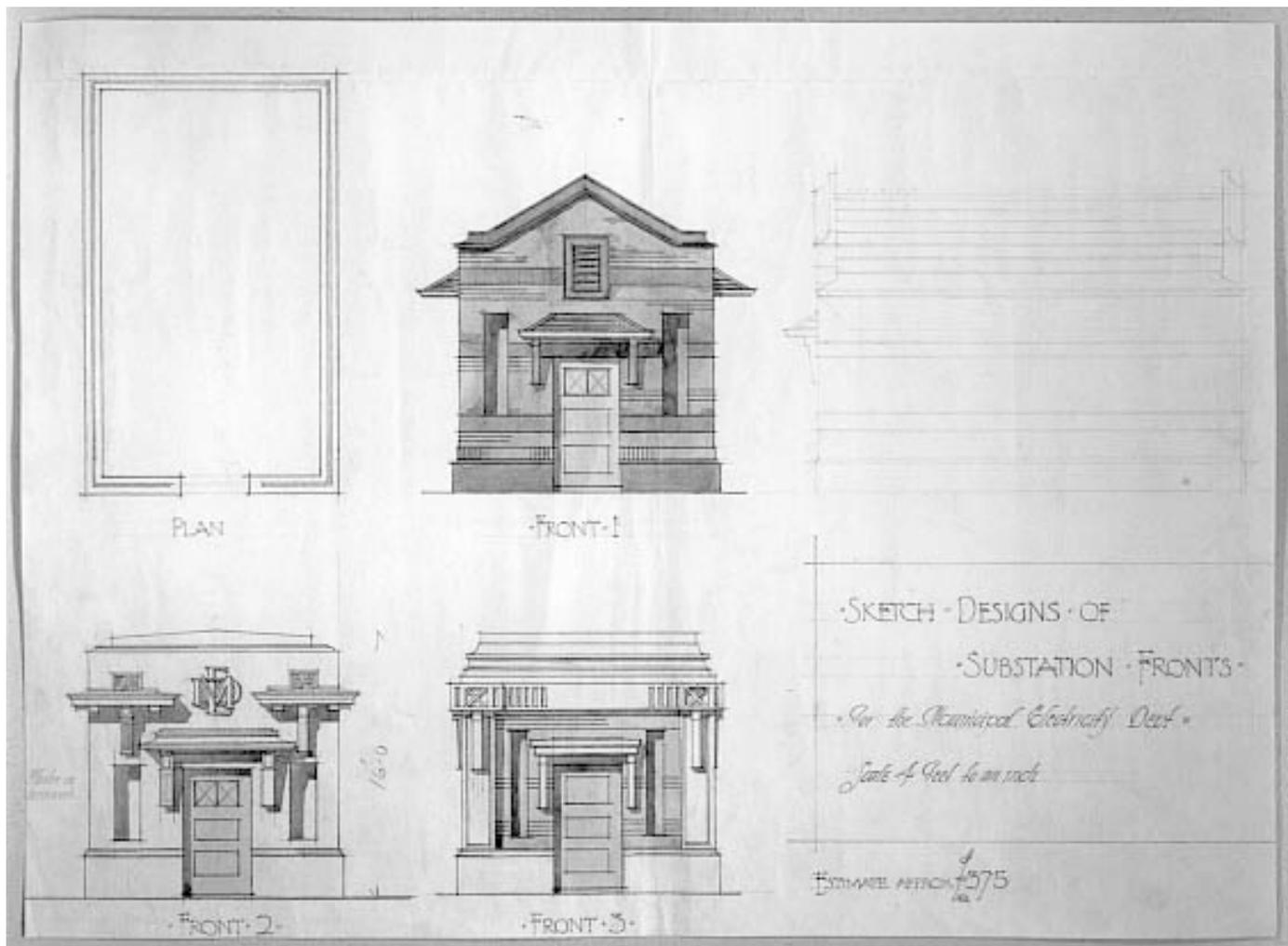
By the mid-1920s, expansion of the service demanded a reorganisation of the distribution system including the construction, in the middle of suburban Sydenham, of a large district substation to service the southern suburbs. The size and the placement of the Milton Street district substation of 1928 resulted in a lengthy dispute with a neighbouring resident, despite the assurance of MED General Manager Edward Hitchcock that "considerable care has been taken to make the

frontage of an attractive design, which will tend to enhance the neighbourhood in which it is to be erected".¹⁷

Throughout 1928, while the Milton Street dispute dragged on, public criticism of the MED continued over the issue of placement of substations as well as their design. A discussion at a City Council meeting concerning a proposal to build electricity substations on the building line instead of the street line provoked this vehement editorial the following day in *The Star*, 24 July 1928:

The Genesis of Civic Pride

The Municipal Electricity Department has always been the enemy of city beautifying. It made a fight to secure sites on the river banks for its vulgar little brick substations; it raided a reserve in Opawa, and it erected a sub-station right in the middle of an avenue of trees on the North Belt at the corner of Madras Street (a station that should have been demolished long ago). Now it has been forced to buy land for these structures, it is pushing them up to the street line, and unbeautifying residential areas. The discussion on the matter last night at least showed that the Town Planning Committee of the City Council is alive to the objections that are being raised. Christchurch has never shown any pride in its public buildings, and yet nothing tends more than beautiful buildings to produce civic pride in a community ...



¹⁵ *The Press*, 1927

¹⁶ Alexander, p. 108

¹⁷ Letter from the General Manager of the MED to the Town Clerk, 3 December 1927

People cannot escape the structures that adorn or disfigure their district, and it is necessary that they should be beautiful not vulgar ... Although the City Council has little control over private owners it can, at least, see that the city is not disfigured with municipal buildings.

Councillors varied in their opinions of substations from “good utilitarian buildings” to “four-square, plain buildings and absolute abominations” to “a nice little palace”.¹⁸

Ensors Road, MED Substation (1922)

A photograph from the W A Taylor collection from around 1950 provides a glimpse of the now-demolished substation. The special attention given to its architecture is indicated by its cost - £252 compared with a similar substation built in 1922 for £135. Its main features were diamond-shaped polychromatic brickwork, Oamaru stone quoins and inserts, and an innovative, probably experimental, flat concrete roof behind the elaborate parapet. (The pitched roof was a later modification to overcome the problem of long-term cracking in the flat concrete roofs.) In the foreground is the triangular plot of land, successfully preserved by public pressure, with the commemorative oak tree that still stands today.

Canal Reserve, MED Substation (1924), demolished

Built at a cost of £312, the Canal Reserve (now Linwood Avenue) substation, was cited by the MED in its Annual Report of 1924 as “the type of sub-station (which is) now being erected on freehold sites...and represents the Department’s endeavour to meet the public demand, rather (than) an economic provision for its needs”.¹⁹ None of the substations built to this design remains today, although their disappearance has been due



Canal Reserve Substation

more to surrounding redevelopment, in this case the Linwood shopping mall (Eastgate shopping centre), than their inappropriate presence in a suburban setting.

Woodham Road, MED Substation (1927)

The neo-Georgian pavilion style was employed here to complement the neighbouring pump house. Although the MED adhered to its policy of building on the street-line, the brick and reinforced concrete structure repeated the same innovative construction method employed at the pump house. Guttering, eaves and frieze were again built as a single unit and the downpipes were concealed within the brick and plaster corner pilasters.



Woodham Road Substation

Without compromising the required 3.65 metre interior clearance, the height was visually reduced by a hipped roof, with wide eaves set down low over the walls and an emphasis on historical elements. These included a deep frieze under the eaves, and a foundation course incorporating the base of pilasters which stood higher than the actual floor level. The side elevations were relieved by geometric mouldings echoing the steel-framed windows of the pump house.



Detail, Woodham Road Substation

¹⁸ *The Star*, 24 July 1928

¹⁹ *MED Annual Report for the year ended 31 March 1924*, p.3, section II

Seddon Street, MED Substation (1928)

Positioned abruptly on a corner site towering over modest bungalows, this early version of the 'Temple to Electricity' theme is constructed of brick and concrete, with a pitched roof of asbestos cement tiles. The façade is an assemblage of classically-derived elements created from plain and moulded brick and concrete, including a broken pediment with a central oculus ventilation window, denticulated cornices, blind arcades and Gibbs surround, and a heavy panelled cedar door. It is listed in the City Plan as a Group 4 heritage building.



Seddon Street MED Substation

Milton Street, MED District Substation (1928)

The site for this substation was selected from a row of about five adjacent long narrow sections, each with small cottages, between Milton and Faraday Streets in the established residential area of Sydenham. A bulky structure, large enough to accommodate a travelling crane, was designed.

On 5 January 1928, the day after work had begun on the site, Thomas Gordon, the owner of the cottage on the western side, expressed dismay at the proposed position of the building. The Council, "on looking the matter up found that neither of the neighbours had been notified...nor had they been asked for permission to place scaffolding etc., on their property, consequently...a letter was sent to each of them dealing with these matters".

Permission was obtained from the neighbour on the eastern side but Mr Gordon replied to the Council on 7 January 1928:

I strongly object to this building going up alongside my property as my house is on the West side of the intended building which is to be 25 feet [9 metres] high and 75 feet [23 metres] in length, and my house is only 4 feet [1.2 metres] from intended wall. The height in itself is sufficient to keep my house from getting any morning sun at all. It will depreciate my property to the extent of £400 as I could never get

near the price I gave for it £900. I consider it would be an unjust act on your part to allow me to stand this loss, and until I receive a favourable reply I cannot see my way clear to allow the contractors permission to enter my section.²⁰

The Electricity Committee considered the matter on 24 January and Mr Gordon was informed by letter the next day that:

Some surprise was expressed that a public work of this nature should be subjected to serious delay as the result of the attitude which you have taken. The City Solicitor is quite definite that there is no question of compensation involved, and the Committee was fully in accord with this view.

It is now found that the sewer and water service to your premises pass through the Council's property. You will appreciate that with the possibility of subsequently constructing foundations for the plant, it is not possible to leave this sewer connection under the floor of the substation. It will, therefore, be necessary for you to remove the sewer and water service from the Council's section to your own. This is now a matter of considerable urgency, and I am instructed to request you to undertake it immediately. The Committee is, however, prepared to meet you to the extent of undertaking the removal of the sewer and water service, provided it receives from you immediate permission to proceed at once with the erection of scaffolding, as already requested.

Your prompt reply to this letter will be in the best interests of both yourselves and the now seriously delayed work of the Council in connection with this building.²¹



Milton Street Substation

²⁰ Substation correspondence files, Southpower

²¹ Ibidem

With the power to cut off Mr Gordon's sewer and water service, the MED now held the trump card. Mr Gordon's reaction is not recorded and there is no further communication from him on file, although progress reports indicate that construction proceeded over the following months. The dispute however dragged on throughout the year with legal advice being sought on both sides but neither party backing down. Finally, the matter was apparently resolved when, on 21 September 1928, the MED wrote to Mr Gordon offering a compensation payment of £50 and removal and replacement of the sewer and water connections at its expense.

The architect of this troublesome structure is not identified on extant drawings. While the torchere motif and the classical idiom bear enough similarity to Dawe and Willis' Sydenham Fire Station (1929) nearby in Colombo Street to suggest the attribution, the façade as a whole lacks the refinement and balance of their subsequent work.

The visual height of the façade was reduced by the use of horizontal elements including a flattened pediment, deep, projecting cornice, a broad, front lintel with a wide, steel-framed window above at the centre of the façade, and bulky corner pilasters. White compo, a mixture of white Dunedin sand and white cement, was used to emphasise the many decorative and structural features of the façade: lintel, sinkings, torches, dentils, circular ornaments, cornices and mouldings, door and window openings, trade sign, parapet and concrete piers. Construction was of reinforced concrete with brick. The distinctive torch ornaments were built out roughly from the wall in brickwork.

While the monumental scale and stilted grandeur of the Milton Street façade still convey a sense of pride and achievement, its slightly shabby condition only emphasises its incongruity with its surroundings. During a storm in the 1950s a switchgear explosion lifted the polite roof, almost wrecking it. Although the roof was repaired, the building was replaced by a more compact structure alongside. Half the size, the new district substation has twice the switching capacity of its predecessor. The older substation, which is now used as a rimu furniture workshop, is listed in the City Plan as a Group 4 heritage building.



Milton Street Substation, detail of torchere

Modern technology in antique dress

Despite the influence of Dawe and Willis conservatism prevailed over electricity substation design. Concurrent with Art Deco influences and the streamlined facade of the new MED offices designed by Victor Hean in 1938, variations on a classical 'Temple to Electricity' theme were consistently employed. 'Good utilitarian buildings' acquired a dignified antiquity with the application of a facade created from a formulaic assemblage of classical architectural elements. Of all antique historical forms, the 'Temples to Electricity' bear a curious resemblance to the rock-cut tombs of Lycia of the sixth and seventh centuries BC.²² Such a temple or tomb, "excavated in native rock, ... usually presents an architectural front with dark interior chambers".²³ Like its ancient predecessors, a twentieth century electricity substation is an impregnable shelter for the containment of mysterious forces. These 'Temples to Electricity' continued to be designed and built through the 1920s and 1930s and are still part of the built landscape in many residential and urban areas.



Rockcut tomb at Antiphelus, Lycia

By the early 1930s, modifications were made in response to the need for earthquake resistance, highlighted by earthquakes at Murchison, 1929, and Napier, 1931. The 1930s also produced a series of substations in a more pared down classicism which was becoming a municipal theme evident in public buildings and structures such as the Robert McDougall Art Gallery by E W Armstrong (1932), Victor Hean's Carlton Mill Bridge (c. 1929) and Edmonds' Band Rotunda (1929). While drawings held by Orion for all its early buildings invariably show only the signatures of MED draughtsmen of the period, Ernest Marriner and Ralph Jenkin, it is not unreasonable to suspect that Council architect Victor Hean supplied the facade designs. These Temples were repeated many times throughout the city and suburbs,

²² George Perrot & Charles Chippiez, *History of Art in Phrygia, Lydia, Caria and Lycia*, London 1892, p.372

²³ Cyril M Harris, *Historic Architecture Sourcebook*, New York 1977, p.458

often set back from the street-line as in Worcester Street West. Some, like Cashmere View Street and Linwood Avenue, now blend into their surroundings, having been softened over time with neighbouring trees and shrubs.

Ernest Marriner was responsible for designing most substations built in the 1930s and 1940s, and supervised contract building. He retired from the MED in about 1949. Ralph Jenkin, who replaced him as Chief Draughtsman, retired in 1961. Even though architects were responsible for the conceptual design of some substations, MED draughtsmen completed detailed drawings to ensure the buildings complied with technical requirements.

Worcester Street, MED substation (1934), Linwood Avenue MED substation (1934)

On the facade of the Worcester Street substation, red brick walls are relieved by cement-plastered areas, corner pilasters and a triglyph frieze, mouldings and nail-head detailing. At Linwood Avenue the horizontal lintel was replaced by a semi-circle and pilastrades of white painted concrete added to the side elevations. In comparison with earlier Temples such Seddon Street (1928) and Gasson Street (1935) the treatment was more developed and assured. The Linwood substation is listed in the City Plan as a Group 4 listed heritage building.



Worcester Street Substation



Linwood Avenue Substation just after completion in May 1935



Retreat Road Substation

Retreat Road, MED Substation (1935)

The Retreat Road site was allocated to the MED when the pump was built, but the substation was not needed until 1935 when the load had increased sufficiently. This design, which had already been employed at Ford Road in 1930, repeated the Art Deco Moderne styling employed by Dawe and Willis for the pump house: the abstracted classical details, broken pediment moulding, the parapet hiding a low pitched roof, re-entrant corners and relief mock window echoing the steel-framed windows of the pump house. It was of brick construction, with a belt course of reinforced concrete, concealed with smooth plaster coating. The substation exterior differs from the pump house only in height and there is some variation in the relief detailing. Built by G F Head, it cost £317. It is listed in Group 4 of the City Plan's heritage list.

Vernon Terrace, MED Substation (1935)

One of the MED's most satisfying solutions to the divergent demands of context, aesthetics, engineering and economics is the neo-Georgian Vernon Terrace substation built by V J Moir for £319. Although its architect is unidentified, the design seems to have evolved from the best pump and substation

designs of the preceding few years. Placed among existing trees on a small reserve, this building relates well to its hillside surroundings, which include solid brick Arts and Crafts-style homes. Careful attention has been paid to the refinement of classical details, the rusticated, corner pilasters, totara finials and the mouldings which run around the base. The restrained use of materials (red brick and white painted concrete), pitched roof of two colours of polite tiles, and the panelled doors with leadlight windows, all contribute to the elegance and domesticity of the building.

Gasson Street North, MED Substation (1935)

Built by G F Head for £278, the decoration and construction of this 'Temple to Electricity' reflected the new emphasis on earthquake resistance. Tall brick parapets and load-bearing masonry walls were replaced with reinforced concrete. The concrete pediment is lower and more streamlined, and a reinforced belt encircles the structure just below the roof-line lower parapet. It is listed in the City Plan as a Group 4 heritage building.



Vernon Terrace Substation, August 1944



Gasson Street Substation

Frank Lloyd Wright's Chicago influence

In addition to the three main styles for utility building exteriors of the 1920s and 1930s - the classically based neo-Georgian pavilion, 'Temples to Electricity' and the more progressive Art Deco - a small number of substations were built in another distinctive architectural idiom. Gamblins Road, Wilsons Road and Winchester Street MED substations show the unmistakable influence of Frank Lloyd Wright's Chicago period and suggest a connection with Hawkes Bay architect Louis Hay, a follower of the Wright style, who used a similar idiom for the Borough Pumping Station at McLean Park, Napier in 1931.²⁴ Once again the designer of these innovative structures is unidentified. Only a small number were built yet they represent a noteworthy attempt to incorporate early modern influences.

Dyers Pass Road, Heathcote County Council substation (1929)

The Wright-Chicago style was employed for an electricity substation built by the Heathcote County Council. The structure is still standing but, having been extended and modified over time, retains few of its original features.



Dyers Pass Road Substation, 1929



Gamblins Road Substation



Gamblins Road detail

Gamblins Road, MED substation (1930)

Here, the unmistakable influence of Frank Lloyd Wright's Chicago period, two decades earlier, is revealed in a simplified geometric treatment of masses, with an emphasis on the horizontal. This was achieved with a smooth stucco finish to all surfaces, a squared parapet and an almost flat reinforced concrete roof with overhanging, cantilevered eaves. Decorative detail was restricted to leadlight door panels, again reminiscent of Wright. The only historicist reference is a row of triglyphs capping the corner pilasters.

The building itself cost £385, compared with a fairly standard 'Temple' such as Seddon Street, which cost £295 in 1929. In addition, a site wider than the footprint of the building, and therefore more expensive, was needed to accommodate the exaggerated eaves within the boundary-line. This fashionable simplicity was clearly employed for aesthetic rather than economic reasons.

The forties and beyond: impact of modernism

With the post-war period came the increasing challenge of modernist values and concerns which brought into question the validity of architectural symbolism and ornamentation. Architect George Griffiths, whose office was almost next door to the MED in Manchester Street, entered the debate over the aesthetics of utility building architecture, bringing with him first-hand experience of architectural developments in Britain and the United States.²⁵ Griffiths contributed at least one superstructure design which was repeated for several substations built in the late forties, including Office Road West in 1947. He subsequently designed a series of pump houses, including one in Pages Road, for the Drainage Board.

Separated by only five years, Griffiths' two schemes for the MED and the Drainage Board illustrate the rapid transition from the ornate treatments of earlier decades through a restrained use of structural polychromy to a modernist emphasis on horizontality and architectural "honesty".

The reduction of decorative elements advocated by modernist architects also had the advantage of keeping costs down. However, from the point of view of MED staff, the involvement of outside architects was, in practice, expensive and counter-productive. Architectural input complicated the design and construction processes, creating costly delays. Thus over the 1950s and 1960s, superstructures of both pump houses and substations were typically designed and drawn up "in house" by drawing office staff. Designs became increasingly prosaic. At the same time, a strategy of camouflage was developed by the MED as the increasing sophistication and reduction in size of electrical equipment meant large masonry structures - temples, palaces or eyesores - could often be replaced by small, unobtrusive kiosks of green-painted, galvanised sheet metal.

²⁴ This was drawn to the writer's attention by Dr Ian Lochhead

²⁵ Interview with former Chief Draughtsman John Henden and biographical information supplied by Keith Anderson of Griffiths, Moffatt & Partners

Neighbours continued to protest about having a substation in their area but were placated by some of the results. For example, the Dallington substation in Coopers Road was built with spacious grounds which, for many years, included immaculately kept gardens.

Councillors and the public all had a different view of what substations should look like. However, certain criteria remained non negotiable. Substations had to be 0.53 metres off the ground for loading and ventilation, weatherproof, and the floor had to be absolutely level.

The MED employed 25 draughtsmen in the 1960s and 70s to meet the increasing demand for power. Three or four substations were “on the go” at once. Former Chief Draughtsman John Henden said he tried to ensure that new substations blended in with their surroundings and displayed some design variations – in line, perhaps an entrance porch, changes in fenestration – but he was always mindful of the cost.²⁶

He believed that elaborate décor made substations stand out and become dated. It was better to have simple lines with some interest created by the line and texture eg Summerhill stone. “We tried to keep the buildings unobtrusive and in keeping with their surroundings,” he said.

Substations throughout the Christchurch area have recently been strengthened to minimise earthquake damage. Some are still being built. Attempts to ensure they blend in with their environment have been taken to new lengths along the Main North Road. There, the small green-painted building with its coloursteel roof and garage door facing the street looks just like another house.

Office Road West, MED substation (1947)

George Griffiths’ contribution to the design of substations of the late 1940s was repeated several times throughout the city and suburbs. Office Road West, which retains most of its original features, is one example. In a simplified version of polychromatic brickwork, Griffiths employed glazed red brick with cream “tapestry” brick to define the door surround, and vertically laid brick to mark the reinforced concrete belt course and visually reduce the height of the structure. The low-pitched roofline was concealed behind a parapet and the down pipes placed to the side to simplify the facade. The door was decorated with an abstract relief motif and leadlight windows.

Corner Weka Street and Tui Street, Fendalton District Substation (1948)

Built by Chas S Luney Ltd for £8210, this was the last substation design of the period to be under the control of Christchurch City Council architects rather than MED draughtsmen. A pitched roof, brick facing to the concrete structure, a front porch and rows of steel-framed windows create the impression of an over-scaled suburban residence. Decoration is restricted to simple, recessed brickwork and a border of glazed tiles at the doorway. An obvious influence is that of Dutch modernism seen in the combination of a traditional building material, brick, with a modernist simplification of form and reduction of elements. Dutch modernism was much favoured in Britain from the 1930s and used widely in New Zealand over the 1940s and 1950s for domestic, commercial and public architecture. The Christchurch Railway Station (designed by Gray Young, Morton and Young in 1939 and built 1959) and numerous State houses are examples.



Office Road West Substation

²⁶ Interview with John Henden, December 2000



Corner Weka and Tui Street Substation

Substation designer

Victor Hean (1901-1979)

Born and educated in Christchurch, Hean was employed at the Christchurch City Council from 1925 as an architectural assistant and draughtsman under the City Engineer, A R Galbraith. He qualified as a registered architect in 1929 and the following year, on Galbraith's recommendation, became assistant

architect. He continued to work for the City Council until 1936, producing both strongly classical work such as the Edmonds' Band Rotunda (1929) and the Carlton Mill Bridge, as well as the streamlined Art Deco exterior of the MED Building, Manchester Street, completed in 1939.



Victor Hean



Edmonds' Band Rotunda soon after completion

Conclusion

With few exceptions, existing pump houses and substations are still functional. The City Council became responsible for the upkeep of pump houses after the Drainage Board was brought under the Council umbrella in 1989. Substations were maintained by Southpower after its separation from the Council in 1989. Following the split in electrical supply and retail functions in 1999, Orion (formerly Southpower) owned the substations and was responsible for their maintenance.

While repairs, maintenance and earthquake strengthening have been diligently undertaken over the years, in many cases architectural integrity has eroded as various original details and features have been altered or stripped away. For example, original MED logos have been chipped off, panelled timber doors replaced with steel to thwart vandals, finials removed, roofs resurfaced and damaged brickwork replaced with only minimal concern for restoration.

Recent seismic protection work carried out on many substations was necessary to protect these valuable assets. The policy is a pragmatic one of retention of the existing structures unless or

until they outlive their original function. Fortunately, the redundant Matai Street pump house has been preserved by the neighbouring hotel. On the other hand, the Woodham Road pump site was sold off and the pump house reduced to a pile of rubble.

A small number of pump houses and substations have been afforded some protection by being listed in the City Plan. However, there is little else to ensure the preservation of any particular substation in the event of major redevelopment. For example the Linwood Avenue (formerly Canal Reserve) substation of 1924 was demolished to make way for the Linwood shopping centre (Eastgate).

These little pieces of heritage survive almost by default. It appears there would be little hesitation in replacing them if the cost of repairs and maintenance or upgrading became uneconomic. Pumping stations and electricity substations remain significant features in the city streetscape. They deserve acknowledgement for their past and present contribution to Christchurch's development.



Glossary

Bolstered brick	Brick that has the appearance of being roughly chiselled or chipped.
Sting course	A horizontal band of masonry extending across the façade of a structure. Sometimes referred to as a string course.
Denticulated	Ornamented with dentils – a band of small, square tooth-like blocks forming part of the characteristic ornamentation of classical orders.
Finial	A formal ornament which terminates the top of a spire, canopy, gable etc.
Oculus	A small circular window or opening in a wall, often at the apex of a dome.
Pavillion Roof	A roof hipped equally on all sides, so as to have a pyramidal form.
Pediment	The triangular gable end of the roof above the horizontal cornice
Parapet	A low wall, often decorative, which extends along the top of a building.

Pilaster	An engaged pier of pillar, often with capital and base.
Pilastrade	A line of pilasters
Structural Polychromy	The use of inherent colour variations of building materials such as brick or stone, for decorative effect.
Quoins	Large stones or bricks used to reinforce an external corner or edge of a wall, often decorative rather than structural.
Triglyph	The characteristic ornament of the Doric frieze, consisting of slightly raised blocks of three vertical bands separated by v shaped grooves.
Torchere	An ornament resembling a flaming torch.
Voussoirs	A brick or wedge shaped stone forming one of the units of an arch.

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