FORMER ELSTERNWICK TRAM SUBSTATION

Former Elsternwick Substation

Elsternwick substation

Elsternwick substation rear view

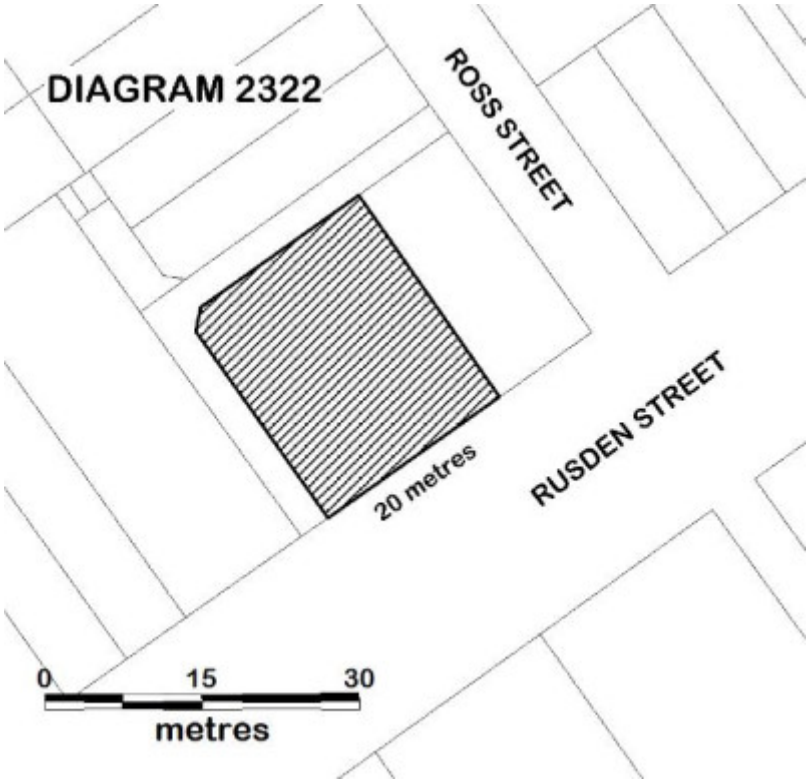

diagram 2322.jpg

Location

6-8 RUSDEN STREET ELSTERNWICK, GLEN EIRA CITY

Municipality

GLEN EIRA CITY

Level of significance

Registered

Victorian Heritage Register (VHR) Number

H2322

Heritage Overlay Numbers

HO58

VHR Registration

December 12, 2013

Heritage Listing

Victorian Heritage Register

Statement of Significance

Last updated on -

Former Elsternwick Tram Substation, built in 1914 by the Prahran & Malvern Tramways Trust (P&MTT).

History Summary

In the early 1900s parts of Melbourne were serviced by cable trams or horse trams, but several suburban municipalities formed tramway trusts and built electric tramways in their areas. The municipalities of Prahran and Malvern cooperated to establish the Prahran and Malvern Tramway Trust (P&MTT) in 1907, and in 1910 opened its first line, along High Street from Charles Street in Prahran to Tooranga Road, Malvern. A car depot (VHR H910) with an attached substation to power the system was built in Coldblo Road, Malvern (now Armadale). A number of adjoining municipalities were to join the scheme during the following decade, and many new lines and extensions to existing lines were constructed by the Trust, including services along High Street, Dandenong Road, Wattletree Road, Balaclava Road, Cotham Road, High Street and Barkers Road in Kew, Glenhuntly Road, Waverley Road, St Kilda Road, Glenferrie Road, Malvern Road, Whitehorse Road and Burke Road. This became the largest independent electric tram network in Melbourne, consisting of almost all of the tram system which exists in the area today. Electricity to power the trams was at first provided solely from the substation at the Coldblo Road depot, but in 1914 a new substation was built at Elsternwick and was switched into the system in December that year to provide extra power. The building was probably designed by the architect Leonard John Flannagan, who had been chief architect for the Trust since 1908. The substation was equipped with a battery, an automatic reversible booster and two 100kw generators relocated from Coldblo Road. In 1919 the P&MTT was taken over by the Melbourne & Metropolitan Tramways Board, which continued to operate the substation until the late 1960s.

Description Summary

The Former Elsternwick Tram Substation is a red brick and stucco building in a Federation Free Classical style. It has two parallel glazed roof lanterns, timber-framed windows and the walls are topped with alternating curved and horizontal parapets with piers projecting above. The letters 'P&MTT' in cast cement distinguish the central parapet. The original large off-centre opening for the movement of electrical plant has been filled in. The building has been converted for use as an office but internally the steel trusses remain as do overhead pulleys for the movement of electrical plant within the building. A small modern brick addition has been made at the rear of the building.

This site is part of the traditional land of the Kulin Nation.

How is it significant?

The Former Elsternwick Tram Substation is of historical and architectural significance to the State of Victoria and satisfies the following criteria for inclusion in the Victorian Heritage Register:

Criterion A Importance to the course, or pattern, of Victoria's cultural history

Criterion D Importance in demonstrating the principal characteristics of a class of cultural places and objects

Why is it significant?

The Former Elsternwick Tram Substation is significant to the State of Victoria for the following reasons:

The Former Elsternwick Tram Substation is historically significant for its association with the Prahran and Malvern Tramways Trust (P&MTT), one of the first, and the most important, of Melbourne's municipal tramway trusts, which preceded the Melbourne and Metropolitan Tramways Board. The tramway trusts established by various private companies and suburban municipalities in the first decades of the twentieth century provided Melbourne's first regular electric tram services, and in the early twentieth century were important for their influence on the development of new suburbs not served by the existing railway lines. The P&MTT was the largest of the municipal tramway trusts and the lines constructed by it formed the basis of the present extensive tram system in the south-east suburbs of Melbourne. (Criterion A)

The Former Elsternwick Tram Substation is architecturally significant as the earliest example in Victoria of a free-standing tram substation, and demonstrates the form and scale of the buildings constructed to house the electrical equipment to operate the early electric tram lines. It is a demonstration of the importance attached to the architecture of utilitarian industrial buildings at the time. (Criterion D)

Permit Exemptions

General Exemptions:

General exemptions apply to all places and objects included in the Victorian Heritage Register (VHR). General exemptions have been designed to allow everyday activities, maintenance and changes to your property, which don’t harm its cultural heritage significance, to proceed without the need to obtain approvals under the Heritage Act 2017.

Places of worship: In some circumstances, you can alter a place of worship to accommodate religious practices without a permit, but you must notify the Executive Director of Heritage Victoria before you start the works or activities at least 20 business days before the works or activities are to commence.

Subdivision/consolidation: Permit exemptions exist for some subdivisions and consolidations. If the subdivision or consolidation is in accordance with a planning permit granted under Part 4 of the *Planning and Environment Act 1987* and the application for the planning permit was referred to the Executive Director of Heritage Victoria as a determining referral authority, a permit is not required.

Specific exemptions may also apply to your registered place or object. If applicable, these are listed below. Specific exemptions are tailored to the conservation and management needs of an individual registered place or object and set out works and activities that are exempt from the requirements of a permit. Specific exemptions prevail if they conflict with general exemptions.

Find out more about heritage permit exemptions here.

Specific Exemptions:

General Conditions: 1. All exempted alterations are to be planned and carried out in a manner which prevents damage to the fabric of the registered place or object. General Conditions: 2. Should it become apparent during further inspection or the carrying out of works that original or previously hidden or inaccessible details of the place or object are revealed which relate to the significance of the place or object, then the exemption covering such works shall cease and Heritage Victoria shall be notified as soon as possible. General Conditions: 3. If there is a conservation policy and plan, all works shall be in accordance with it. Note: A Conservation Management Plan provides guidance for the management of the heritage values associated with the site. It may not be necessary to obtain a heritage permit for certain works specified in the management plan. General Conditions: 4. Nothing in this determination prevents the Executive Director from amending or rescinding all or any of the permit exemptions. General Conditions: 5. Nothing in this determination exempts owners or their agents from the responsibility to seek relevant planning or building permits from the responsible authorities where applicable.

Interior works:

Any interior works which do not affect original fabric and are not visible from outside the building are permit exempt.

Theme

6. Building towns cities and the garden state

Construction dates	1914,
Architect/Designer	Flannagan, John,
Heritage Act Categories	Registered place,
Hermes Number	192285
Property Number	

History

CONTEXTUAL HISTORY

The first trams operating in Melbourne were horse-drawn, but from 1885 a system of cable-hauled tramways was constructed. This comprised 46 miles [74 km] of double track serving seventeen routes radiating from the centre of the city to neighbouring suburbs, and was probably the world's largest cable tram network.

The first electric tram to run in Australia was demonstrated during the Centennial International Exhibition in Melbourne in 1888. From 1889 until 1896 this pioneer vehicle and a second car ran a regular tramway service between Box Hill Station and Doncaster, mainly as a means of attracting potential land purchasers, but it did demonstrate the viability of electric traction.

The first two regular electric tram services in Melbourne opened in 1906, with the opening of a line to Essendon and the Victorian Railways line from St Kilda to Brighton. In the early 1900s, several suburban municipalities formed trusts and built electric tramways in their areas. The Prahran & Malvern Tramways Trust opened lines in 1910, followed by the Hawthorn Tramways Trust and the Melbourne Brunswick and Coburg Tramways Trust in 1916. Until the State Electricity Commission of Victoria was formed in 1920, electricity for the trams was provided by various private and municipal power generators.

Construction of lines by other municipal trusts (the Footscray Tramways Trust and by the Fitzroy, Northcote and Preston Tramways Trusts) was well under way when, in 1919, the Victorian Government set up the Melbourne and Metropolitan Tramways Board (M&MTB) to amalgamate the cable and electric tram routes and integrate the whole system. The first cable tram line electrified was the St Kilda line in 1925, and between then and 1940 the MMTB progressively electrified all of the old cable system. The cable trams were converted to electric traction, new depots and substations were built, lines extended and new routes added.

Tram substations

Before the formation of the State Electricity Commission (SEC) power was generated by local generating plants, which produced high voltage alternating current (AC). However since the 1880s electric trams have been powered by direct current (DC) at relatively low voltage - initially at 500 volts, but in later years more commonly between 600 and 750 volts. DC motor design was particularly suited to tramway traction as the compact and light motors could easily be incorporated into the restricted space of trams. However DC has a major disadvantage in that it can not be transmitted more than about 4 km. Substations were required house the equipment to transform high voltage AC power to low voltage DC traction power for the tram systems. These were at first located within the tram depots.

HISTORY OF PLACE

There was a great increase in the population in the south and south-east suburbs of Melbourne in the 1880s and increasing agitation in the area for modern public transport. Local residents saw an east-west tramway connecting Malvern and Prahran via High Street as a priority.

Malvern councillor Alex Cameron was influential in persuading the State Government to pass legislation to establish a municipal tramway, despite the opposition of the Victorian Railways which feared competition with their train services. The main purpose of the tramway was not necessarily to return a profit but to promote the commercial and residential development in the municipalities by providing cheap and reliable public transport and so increase the rates revenue.

The Prahran and Malvern Tramways Trust (P&MTT) was established by the Prahran and Malvern municipal councils through an act of parliament in 1907, with Alex Cameron as the first Chairman. Between 1910 and 1920 its tramways were to spread through seven municipalities (St Kilda, Caulfield, Kew, Hawthorn and Camberwell). It was to be by far the largest of the independent electric tramways formed in the early twentieth century, and was to play a dominant role in the M&MTB when it took over the system in 1920.

Construction began in 1909 on the first two routes: a line along High Street from Charles Street, Prahran to Tooronga Road, Malvern, and a branch from this line south along Glenferrie Road to Wattletree Road, where it turned east to terminate at Burke Road. The tram depot with substation, offices and workshop (VHR H910) were constructed at Coldblo Road just off Glenferrie Road at Malvern. Electricity was supplied by the privately-operated Melbourne Electrical Supply Company from its Richmond power station, and transmitted to the substation at the Coldblo Road depot at 4000V AC where it was converted to 600V DC by rotary converters. The first tram operated in May 1910.

A number of new lines and extensions to existing lines were constructed by the Trust between 1911 and 1917, including services along High Street, Dandenong Road, Wattletree Road, Balaclava Road, Cotham Road, High Street in Kew, Hawthorn Road, Glenhuntly Road, Waverley Road, St Kilda Road, Glenferrie Road, Malvern Road, Barkers Road in Kew, Whitehorse Road and Burke Road. The Municipalities of Kew and Hawthorn joined the system in 1913. A depot at Kew was built by the P&MTT in 1915, which included a substation and offices, and three shops along the Barkers Road frontage to obtain revenue. The Trust was often involved in related commercial ventures designed to enhance the value of its business but also to provide public amenity, for example in Central Park at Malvern a substantial kiosk and bandstand were constructed, and subleased to a private operator.

To increase the supply of power to the system a third 300KW generator was added to the Coldblo Road substation in 1914, but the 1913 extension of the line to Elsternwick required further power and led to the building of the first free-standing substation in Melbourne, in Rusden Street near the Glenhuntly Road tram line. The Trust purchased land for a new substation in Rusden Street, Elsternwick. The land, measuring 60ft x 77ft, was purchased from Charles Kay of Northcote. The architect for the new building was probably Leonard John Flannagan, who had been chief architect for the Trust from 1908. The Rusden Street sub-station was switched into the system on 17 December 1914. It was equipped with two 100kw generators relocated from Coldlbo Road, an automatic reversible booster and batteries for overload operation. It was the only free-standing substation built by the P&MTT. It was located in a residential area and was sympathetically designed to blend with the surrounding Edwardian period houses.

The P&MTT became the largest independent electric tram network in the suburbs, creating almost all of the system in the south east suburbs that exists today. The Melbourne & Metropolitan Tramways Board took over responsibility for all of the cable tramways in 1919, and all the municipal electric tramways, including the P&MTT,

in 1920. Alex Cameron resigned from his role as Chairman of the P&MTT in 1919 to assume the same role for the M&MTB, and other officers of the Trust assumed senior positions with the new Board, which led to many of its engineering and management practices being continued in the large organisation.

It is not certain when the Elsternwick substation ceased operating. It is noted in the M&MTB Annual Report of 1966 that the 300 kW rotary converter was decommissioned in that year, with the reduced need for power following the closure of the Point Ormond Line in 1960. In 1967 the Annual Report noted that a new silicon diode substation at Prahran was completed in 1967 and any need for the Elsternwick substation disappeared at that time. It is not known when the property was sold by the M&MTB. (Information in email from Russell Jones of Friends for Hawthorn Tram Depot, 5 August 2013)

The former substation is now used as offices and medical suites.

KEY REFERENCES USED TO PREPARE ASSESSMENT

Biosis Research (Gary Vines), 'Melbourne Metropolitan Tramway Heritage Study', Report for Heritage Victoria, 2011.

Public Transport Victoria website: http://corp.ptv.vic.gov.au/managing-victoria-s-public-transport-network/history-and-heritage/early-history-of-public-transport/#trams]

Duckett, P.W, *'Prahran and District Tramways'* in ARHS Bulletin, April, 1945, No. 90, pp. 51-52, and No. 91, pp. 62-63.

John Keating, *Mind the Curve! A history of the Cable Trams*, Sydney 2001.

Russell Jones for Friends of Hawthorn Tram Depot: 'Steady as she goes: the Prahran & Malvern Tramways Trust', 2008, online at

http://www.hawthorntramdepot.org.au/papers/pmtt.htm; and 'From Rotary Converters to solid-state: tramway substation architecture in Melbourne', 2013, online at http://www.hawthorntramdepot.org.au/papers/substations.htm.

Plaque Citation

This is Melbourne's oldest free-standing tram substation. It was built in 1914 by the Prahran & Malvern Tramways Trust, and was operated by the Melbourne & Metropolitan Tramways Board from 1920 until ceasing operation in the late 1960s.

Assessment Against Criteria

Criterion
The Former Elsternwick Tram Substation is of historical and architectural significance to the State of Victoria and satisfies the following criteria for inclusion in the Victorian Heritage Register:

Criterion A Importance to the course, or pattern, of Victoria's cultural history Criterion D Importance in demonstrating the principal characteristics of a class of cultural places and objects
The Former Elsternwick Tram Substation is significant to the State of Victoria for the following reasons:

The Former Elsternwick Tram Substation is historically significant for its association with the Prahran and Malvern Tramways Trust (P&MTT), one of the first, and the most important, of Melbourne's municipal tramway trusts, which preceded the Melbourne and Metropolitan Tramways Board. The tramway trusts established by various private companies and suburban municipalities in the first decades of the twentieth century provided Melbourne's first regular electric tram services, and in the early twentieth century were important for their influence on the development of new suburbs not served by the existing railway lines. The P&MTT was the largest of the municipal tramway trusts and the lines constructed by it formed the basis of the present extensive tram system in the south-east suburbs of Melbourne. (

Criterion A)
The Former Elsternwick Tram Substation is architecturally significant as the earliest example in Victoria of a free-standing tram substation, and demonstrates the form and scale of the buildings constructed to house the electrical equipment to operate the early electric tram lines. It is a demonstration of the importance attached to the architecture of utilitarian industrial buildings at the time. (
Criterion D)

Extent of Registration

All of the place shown hatched on Diagram 2322 encompassing part of Consolidation Plan 172418.