

Cable Car Winding House

Upland Road / Botanic Gardens



Image: *Charles Collins, 2015*

Summary of heritage significance

- The Cable Car Winding House is a good representative example of an early 20th century industrial building.
- The tramway and Winding House were designed by James Fulton, one of New Zealand's first fully trained engineers and one of the most important.
- The Winding House represents a high tide mark for the development of New Zealand tramways and played a key role in the development of Wellington as a city. It is now a key heritage tourism attraction.
- The Winding house is the oldest intact example of a mechanical engineering installation in New Zealand.

District Plan:	Map 17, reference 30
Legal Description:	Pt Lot DP 8530; Sec 1224 Town of Wellington; Pt Wesleyan College Reserve Town of Wellington
Heritage Area:	Building adjacent to: Botanic Gardens Heritage Area, Cable Car route Heritage Area
HPT Listed:	Historic Place Cat II, 5372
Archaeological Site:	Pre 1900 human activity on site
Other Names:	Cable Car Museum Bldg A – Botanic Gardens – Cable Car Winding House – WCC Bldg.
Key physical dates:	Built 1901
Architect / Builder:	James E. Fulton (Engineer)
Former uses:	Engineering/transport
Current uses:	Commercial/retail/museum
Earthquake Prone Status:	Building Strength Inventory status 'Potentially Earthquake Prone' SR 201058

Extent: Cityview GIS 2012



1.0 Outline History

1.1 History

The Wellington Cable Car Winding House built in 1902, now home to the Wellington Cable Car Museum, is a utilitarian building influenced by Georgian architecture styles. It was designed by Cable Car engineer James Fulton at the turn of the century and has had a long relationship with the city of Wellington. The following history is paraphrased from Michael Kelly and Ian Bowman 'Former Cable Car Winding House Conservation Plan', prepared for the Wellington City Council, 1997.

At the turn of the century, Wellington was one of the fastest growing cities in New Zealand. It became apparent early that settlers wanted to take advantage of central city living, and soon the areas around the harbour, Lambton Quay, Cuba Street, and Te Aro were all bustling. Growth was, however, diminished due to an absence of readily available land. Above the city, Kelburn was an attractive option, its potential lessened by the steep hills that divided it from the commercial Lambton Quay. The potential was soon realised when in 1890 the Upland Estate Company created a new subdivision. For this project to be a success, the Company proposed the installation of a tramway between the suburb and the city. In 1898 the shareholders of the Upland Estate Company formed the Kelburn and Karori Tramway Company.

The company hired engineer James Fulton to design the tramway. The line would extend from Lambton Quay, through The Terrace, Clifton Terrace, Salamanca Road, to the summit at the Botanic Gardens. This is where the 'powerhouse' was to be situated. This building would house the boiler to power the steam engine which would turn the huge wheels needed to drive the cars. It would also function as a maintenance depot.

There is an absence of evidence that an architect was commissioned to design the powerhouse, so it can be assumed that James Fulton as the designer and engineer of the tramway system was also the designer of the powerhouse building. There are, however, one set of plans that are in a different hand to Fulton's, so there may have been some consultation with an architect or draftsman. Fulton's initial plans are dated March 1901, and the specifications May of the same year. The building of the powerhouse was begun shortly after this. The powerhouse, with the exception of some private houses on the ridge overlooking the city, was one of the first buildings in Kelburn, and was the first building on Upland Road. The building had two storeys and two wings. The ground floor contained the two boilers in tandem operation, with a coal store that fed hoppers below. The engine and winding gear were housed on the ground floor of the south wing, the eastern or city side of which was open to the upper floor. The top floor was used as a car pit; maintenance of the undercarriages was carried out from below. Rail tracks on trestles led to doors on the upper storey of both wings.

The coal to heat the boilers had to be carted to the top of the hill and was a considerable expense for the new company. Smoke was released by a 19 meter chimney which, in its day, was regarded as a Wellington landmark and a useful weather vane. The original steam engine appears to have been a Marshall traction steam engine modified for this project. Water, which was also essential for the steam engine, was supplied by a pump and windmill system installed at Salamanca Road.

Once completed, the powerhouse was fenced off from the Botanic Garden and Upland Road. It was several years before the Tramway Company properly landscaped the area. The tramway was finally opened on the 22 February 1902, and during its first days of operation free tickets were offered to parties interested in purchasing land in Kelburn:

Kelburne Tramway is now open to the public. The first sale of Kelburne will take place on Wednesday, 26 Feb., 1902. Free passes on the tramway will be given to intending Purchasers on application to Harcourt and Co. Auctioneers, or I.H.B. Wilson Grey-Street.¹

The opening weekend of the tramway was a huge success and the future of the system was assured. Many people also took the opportunity to ride the horse drawn trams that linked Kelburn and Karori. Public demand was immediate and soon the cars were modified to pull trailers up the incline as well. The tramway could now seat 62 seated adults on each trip and the load was easily accommodated by the winding gear, which was designed to carry many times this load. By 1912 over one million people were riding on the tramway each year, and it was at this time that the Kelburn and Karori Tramway Company sought for the first time to electrify the system. The application was turned down by the Wellington City Council for unknown reasons, but the cost involved may have been a factor.

By 1933 some major alterations had been carried out on the building including: the extension of the Mezzanine flooring to cover the whole floor; stairs built down to a new door in the south-east corner of the winding room; the extension of the winding room towards Upland Road; and the addition of a small lean to on the city elevation. 1933 was also the year that the Council gave permission for the company to electrify the system. This meant that the steam boiler, engine, and coal store were no longer needed, so the entire wing that housed the system was removed, along with the smokestack, the trestle bridge, and track. The changes to the building were designed by the architectural firm of Swan, Lawrence, and Swan, and the contractor was Michael Templeton. A new exterior wall needed to be built along what had been the middle partition and loft, the roof was completely rebuilt, new fenestration was installed, the loft floor was raised, and over half of the floor area was rebuilt in concrete. By the end of the work, little remained of the original building and, curiously, the changes that were made did not strictly follow the Swan designs.

Electrification helped to modernise the system, drivers had more control over the cars, and the system was quieter and more efficient. In the early 1940s a dispute arose between the Kelburn and Karori Tramway Company and the Wellington City Council over the competition offered by the Wellington bus fleet. Courts found that the buses were violating the Municipal Corporations Act 1933, and a solution was reached in 1946-the Council would purchase the tramway. The Kelburn and Karori Tramway Company dissolved in 1947.

The role of the tramway changed while under the mantle of the City Council, increasingly being emphasised was its tourist potential, rather than its original potential for opening up new suburbs. The tourist traffic increased after the removal of trams from Wellington streets in 1964 as this left the Cable Car as the only link to the tram era in New Zealand. In 1969 management decided that it needed to replace

¹ Page 8 Advertisements Column 2 Evening Post, Volume LXIII, Issue 46, 22 February 1902, Page 8, accessed 10 October 2012, <http://paperspast.natlib.govt.nz/cgi-bin/paperspast?a=d&cl=search&d=EP19020222.2.81.2&srpos=385&e=-----50-EP-381-byDA---0Kelburne+Tramway-->

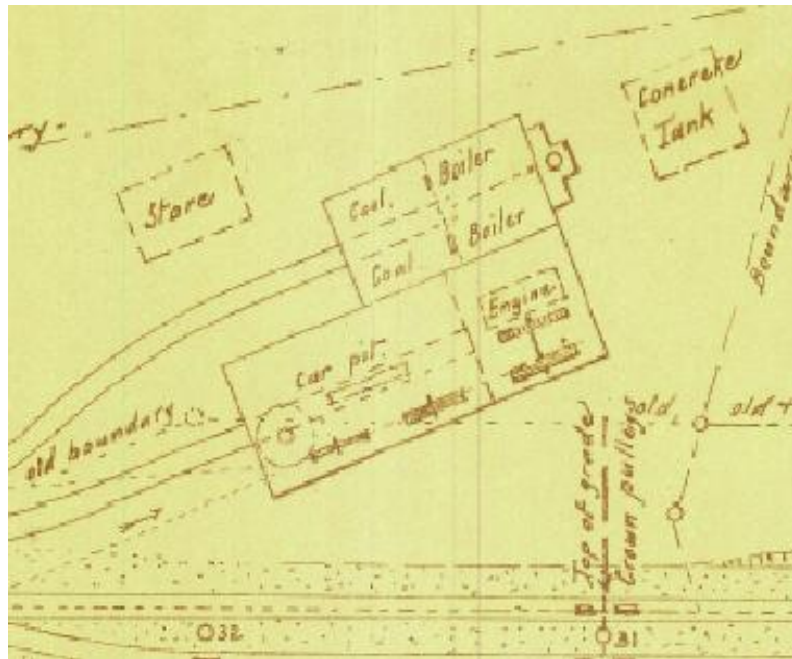
the winding gear tension wheel. In lieu of spending approximately \$4000 on a new wheel, a second hand wheel was sourced from the Rewanui mine on the West Coast and purchased for \$50. In May 1973 a construction worker was seriously injured when he accidentally stepped in front of the cable car. As a result, the safety of the cable car was called into question by the Ministry of Works' District Mechanical Engineer. His final report suggested that the system be renewed or replaced. In June of 1974 the Ministry of Works recommended that the trailer carriages which had operated without brakes be discontinued and that the Grip cars were altered. These were, however, interim solutions as the Ministry of Works wanted the system to be completely upgraded to the extent of needing new winding gear and new carriages.

The Wellington City Council objected to these instructions, but made a number of changes to improve the safety of the system. Despite this, the trailers were removed from the tracks in 1974 and Grip cars 1 and 2 were overhauled. Further modifications were made to the cars and tracks during 1975 but the Ministry of Works were still not convinced of the Cable cars safety. 1976 saw the system upgraded including an overhaul of the electrical systems, the replacement of the main drive wheel and shaft, and the repair and repainting of the Winding House. This overhaul also persuaded the council to replace the cars with a fully automatic system. Grip car 3 was taken off the tracks and it would never again be used for service.

In 1978 the old cars made their final run and the work on the new Swiss designed system began. Wellington architect Ian Athfield presented his ideas for the redevelopment of the area at the top of the Cable Car. The concept of a cable car museum was presented, but the intention was to demolish the old winding house and erect a new building. This idea was ultimately rejected in favour of retaining and upgrading the winding house for its 'architectural qualities'. The idea of the museum had gained currency by 1979 but little had been done to make this happen. New temporary facilities were installed for women and the disabled, but it soon became apparent that this was the only use that the building had at that time, so they became permanent. In 1984 an interpretation centre was set up in the winding house, and new internal facilities including a kitchen were installed. In the early 1990s, the Civil Defence Authority took over the building but ceased their tenancy in 1993. At this time the Wellington City Council proposed to remove the building, but this was met with such dissent and protest that the decision was made to retain it. The Cable Car Heritage Inc., was established and the Council resolved to convert the building into the cable car museum. A new steel staircase was built, a steel tray for services fixed to the winding room ceiling, the loft floor covered with a composite board floor and steel plate with rails, and the loft partition largely removed. Considerable work was carried out in tidying up the exterior as well as the interior.

The Cable Car Museum opened its doors in December 2000 with the winding gear fully restored and the 'relentless red rattler' Grip Car 1 and a trailer on display. In 2005 the museum was extended, incorporating the exterior wall of the Winding gear room inside a modern addition. This addition saw a new staircase and elevator system installed, and now houses a fully restored 1905 Grip Car (Grip Car 3). 2011 saw the trailer from Grip Car 1 removed for conservation and storage. The current occupier is the Cable Car Museum, a part of the Wellington Museums Trust, and hosts over 230,000 museum visitors each year.²

² 'Cable Car Museum refurbishment', Museums Wellington, accessed 10 October 2012, <http://www.museumswellington.org.nz/cable-car-museum/what-s-on/cable-car-museumrefurbishment/cable-car-museum-refurbishment-2/>



Section of plans. (WC Archives 00053-74-4438).



Image of powerhouse, cable car, and tearooms. Between 1905-1930. Photograph taken by William. A. Price.

1.2 Timeline of modifications (include original plans)

- 1901 Building construction (00053:74:4438)
- 1919 Additions and alterations (00053:197:10871)
- 1933 Extension of power house (00056:135:B12258)
Alterations to power station (00056:141:B12768)
- 2000 Additions and alterations-Cable Car Winding House Visitors Centre, internal fit-out of heritage building (00078:547:68645)
- 2005 Addition to Cable Car Museum to accommodate historic grip car (00078:1628:124058)

1.3 Occupation history

1901-1946	Kelburn and Karori Tramway Company
1946-1984	Wellington City Council
1984-2000	Numerous tenancies
2000-present	Cable Car Museum (Wellington Museums Trust)

1.4 Architect

James Fulton³

James Fulton spent a short period working in a flax mill, then in 1874 followed his elder brother Arthur into the Public Works Department in Wellington as a cadet. He became an assistant engineer in 1878 and in the same year obtained his certification as a surveyor. For the next two years he was engaged on a variety of survey work in Hawke's Bay, and in Northland on the proposed Kaihu Valley railway scheme. In 1881 the Wellington and Manawatu Railway Company was formed to construct the line from Wellington to Palmerston North. After much debate over the route, the shorter one – via Shannon to Longburn – was chosen, thus bypassing Foxton, then the centre of a thriving flax industry. James Fulton was appointed resident engineer on the Waikanae–Longburn section a few months after Arthur had been appointed to the same post on the Wellington–Waikanae section. The brothers worked under the direction of H. P. Higginson, the senior engineer to the company.

Several major civil engineering works were required during construction of the line, including tunnels on the southern section and earthworks, swamp drainage and a crossing of the Manawatu River at Longburn on the northern section. The track was completed in 1886. James Fulton succeeded his brother as manager and locomotive superintendent for the whole line soon after Arthur's death in 1889. He remained in this post until 1897.

The line, although only 83 miles long, was in some respects a showpiece for railway travel in New Zealand at the time. No doubt spurred on by competition from the government-built line (which came up through Wairarapa, over the difficult Rimutaka section and through the Manawatu Gorge to Palmerston North), the private western line introduced passenger comforts such as upholstered seating, electric lighting and a dining car. During James Fulton's period as manager, wood rather than coal was burnt in the locomotives in some seasons to provide an income to local farmers as well as to use wood from company-owned land along the route.

³ Peter Lowe, 'Fulton, James Edward - Biography', from the Dictionary of New Zealand Biography. Te Ara - the Encyclopedia of New Zealand, updated 1-Sep-10, accessed 10 October 2012, <http://www.TeAra.govt.nz/en/biographies/3f15/1>

This was eventually stopped because of the track-side fire hazard it caused. After the opening of the North Island main trunk line in 1908, the Wellington–Manawatu line was sold to the government.

Following his return to private practice in Wellington in 1897, James Fulton was responsible for the design and building of the Kelburn cable tramway, and the first Kelburn viaduct. These were crucial in making possible the development of the western suburbs of Wellington. Other commissions included the design of a number of bridges for central and local government.

From 1903 Fulton was engineer-designer for the Taupo Totara Timber Company's narrow-gauge railway from Putaruru south for about 50 miles to Mokai. This track was the most substantial of its type in New Zealand and required a crossing of the Waikato River at Ongaroto. The crossing structure was a 230-foot-long laminated timber arch bridge, an impressive structure even by modern standards. The alignment adopted for the track was chosen to minimise the amount of earthworks needed, and required a change in level of over 1,000 feet both north and south of the Waikato. Access was by pack-horse or on foot, and the working conditions were very difficult. The track included some curves that were tortuous to negotiate and derailments were not uncommon. Construction was completed in 1905 and the line remained in company ownership and operation until 1947. James Fulton was a foundation member of the New Zealand Institute of Surveyors in 1888, along with his brother, Arthur. He served as president in 1909–10. He became a member of the New Zealand Society of Civil Engineers in 1915, having already been a member of the Institution of Civil Engineers, London, since 1888.

John Swan⁴

Swan (1874-1936) practised architecture during the late nineteenth and early twentieth centuries. He formed part of the last group of architects to follow the traditional Gothic and Classical styles. He was articled to Frederick de Jersey Clere, working with Clere on many major designs such as the Wellington Rowing Club building (then known as the Naval Artillery Boat Shed, 1894) as well as smaller provincial buildings such as the Church of the Good Shepherd, Tinui. The firm was known as Clere, Fitzgerald and Richmond and was one of the most prominent architectural practices in Wellington. From 1901 to 1906 Swan was in partnership with Clere, practising on his own account from 1907. The first major design produced by Swan in this new practice was the Karori Crematorium (1907) which served to establish his architectural identity separate from Clere. During his long and varied career Swan produced a large and wide range of work, including a number of banks for the National Bank such as the head office building in Wellington (1907), educational buildings for the Wellington Technical College with William Gray Young (1922), and a number of major buildings for the Catholic Church including St Gerard's Church, Mt Victoria (1910), Sacred Heart Convent (later Erskine College), Island Bay (1909), and Wanganui Convent (1912). He was an architect of imagination as evidenced by the design of his own house 'The Moorings', Glenbervie Terrace (1905).

⁴ 'Swan, John Sydney, 1874-1936', Appendix III- Wellington Architects, *Wellington Heritage Building Inventory 2001: Non-Residential Buildings*. (Wellington City Council, 2001), APPENDIX III.

2.0 Physical description

2.1 Architecture

The Cable Car Winding House is a two-storey timber framed and weatherboard industrial building. It was designed in 1902 in a domestic style with a symmetrical pitched roof, and clad in timber weatherboards with a restrained decorative scheme comprised of 'stick-style' cover boards (most of which have since been removed).

A coal store and boiler room were located to the west of the winding house, and these were demolished in 1933 when the system was electrified. The remaining engine shed/winding gear rooms were altered extensively at this time and almost all of the current arrangement of fenestration, the asymmetric roof and the exterior cladding (particularly to the east and west) date from 1933.

Most of the modern interventions date from the era between 1984 and 2005 when the building was adapted to form a Cable Car Museum. There is a modern, two storey addition, built in 2005, in the approx location of the original coal store and boiler room as an extension to the museum.

The first floor of the 1902/33 building is an open space that was once used for cable car maintenance and features an open pit to the ground floor to allow access to car undercarriages. A large double door, one of the few original features left in the building, opens out onto Upland Road. Part of the floor is concrete. The ground floor houses the engine and winding gear, as well as the former chief engineer's office and tool room.

2.2 Materials

- Timber structure clad in weatherboards
- Corrugated Iron / corrugated mild steel roofing
- Concrete foundations

2.3 Setting

The Cable Car winding house is situated at the top of the cable car in the Botanic Gardens precinct. There are few buildings that relate to its immediate setting. In relation to the cable car system, the winding house is a valuable record of a century of the cable car in Wellington. It has a good group relationship with the Cable Car Route Heritage Area which includes the Cable Car infrastructure, tunnels, sections of track etc.

More widely, this building acts as a landmark for the Botanic Gardens. The Cable Car winding house is also adjacent to the Botanic Gardens Heritage Area, which includes the nearby conservatories and the Botanic Gardens overseers' house.

3.0 Sources

Kelly, Michael and Bowman, Ian. *Former Cable Car Winding House*. Unpublished Conservation Plan, Wellington City Council, 1997.

Lowe, Peter. 'Fulton, James Edward - Biography'. *Dictionary of New Zealand Biography*. Te Ara - the Encyclopedia of New Zealand, updated 1-Sep-10, accessed 10 October 2012.
<http://www.TeAra.govt.nz/en/biographies/3f15/1>

Price, William. A. 'Cable car, power house and Kelburn Tea Kiosk, Kelburn, Wellington'. Taken between 1905-1930. Accessed 10 October 2012.
<http://beta.natlib.govt.nz/records/22733242?search%5Bi%5D%5Bcategory%5D=Images&search%5Bpage%5D=4&search%5Bpath%5D=items&search%5Btext%5D=Cable+Car>

Wellington City Council. *Wellington Heritage Building Inventory 2001: Non-Residential Buildings*. Wellington City Council, 2001.

Wellington City Archives

'Kelburne and Karori Tramway Power Station, Botanic Gardens Wellington'. 00053-74-4438, Wellington City Archives.

Newspapers

'Page 8 Advertisements Column 2'. Evening Post, Volume LXIII, Issue 46, 22 February 1902, Page 8. Accessed 10 October 2012.
<http://paperspast.natlib.govt.nz/cgi-bin/paperspast?a=d&cl=search&d=EP19020222.2.81.2&srpos=385&e=-----50-EP-381-byDA---0Kelburne+Tramway-->

Criteria for assessing cultural heritage significance

Cultural heritage values

Aesthetic Value:

Architectural: *Does the item have architectural or artistic value for characteristics that may include its design, style, era, form, scale, materials, colour, texture, patina of age, quality of space, craftsmanship, smells, and sounds?*

The Cable Car Winding House is a good representative example of an early 20th century industrial building.

Townscape: *Does the item have townscape value for the part it plays in defining a space or street; providing visual interest; its role as a landmark; or the contribution it makes to the character and sense of place of Wellington?*

Group: *Is the item part of a group of buildings, structures, or sites that taken together have coherence because of their age, history, style, scale, materials, or use?*

This building is located near both the Botanic Gardens Heritage Area and the Cable Car Route Heritage Area and has group value for its relationship with these significant collections of buildings, objects, and cable car infrastructure.

Historic Value:

Association: *Is the item associated with an important person, group, or organisation?*

The tramway and Winding House were designed by James Fulton, one of New Zealand's first fully trained engineers and one of the most important.

This building has historic value for its association with the Kelburn and Karori Tramway Company and the development of Kelburn as a suburb.

Association: *Is the item associated with an important historic event, theme, pattern, phase, or activity?*

The Kelburn Cable Car was a major milestone in the development of New Zealand transportation and is one of New Zealand's most enduring engineering achievements. The Winding House is one of the oldest remaining fragment of Wellington's public tramway system; a system that remains in use as both a local amenity and a significant heritage tourism attraction.

Scientific Value:

Archaeological: *Does the item have archaeological value for its ability to provide scientific information about past human activity?*

Risk Unknown – There is evidence of pre 1900 human activity on the site, it is reasonable to assume that there will be archaeological deposits.

Educational: *Does the item have educational value for what it can demonstrate about aspects of the past?*

The building and internal fittings have educational value for their association with transport history. They were converted into a museum in the mid-1980s to provide education/interpretation.

Technological: *Does the item have technological value for its innovative or important construction methods or use of materials?*

The Winding House is significant for technological and scientific reasons as it is one of the only winding systems that is still in situ in New Zealand and is the only one left that was used for civil purposes rather than in extractive industries. It is the oldest example of a mechanical engineering installation in Wellington.

Social Value:

Public esteem: *Is the item held in high public esteem?*

The building is held in high public esteem and this can be seen from the public response to the proposed removal of the building in c.1993. It is currently a museum and hosts over 230,000 visitors per year.

Symbolic, commemorative, traditional, spiritual: *Does the item have symbolic, commemorative, traditional, spiritual or other cultural value for the community who has used and continues to use it?*

...

Identity/Sense of place/Continuity:

Is the item a focus of community, regional, or national identity?

Does the item contribute to sense of place or continuity?

The Winding House has occupied this site for over 100 years and has had few intrusive modern alterations or additions. It contributes to a sense place and continuity to both the Botanic Gardens Heritage Area and the Cable Car Route Heritage Area.

Sentiment/Connection: *Is the item a focus of community sentiment and connection?*

The Winding House has value as a focus of community sentiment and connection for the people who rode, and continue to use, the system.

Level of cultural heritage significance

Rare: *Is the item rare, unique, unusual, seminal, influential, or outstanding?*

As the home of the only intact winding gear used for civil purposes in New Zealand it has some rare qualities. Its continuity of use and continued association with the cable car contribute to this value.

Representative: *Is the item a good example of the class it represents?*

Authentic: *Does the item have authenticity or integrity because it retains significant fabric from the time of its construction or from later periods when important additions or modifications were carried out?*

The Winding house possesses authenticity due to the retention of some original fabrics and design aspects made by James Fulton, the retention of the original winding gear in situ, and the retention of the changes that were made in 1933 by John Swan.

Local/Regional/National/International

Is the item important for any of the above characteristics at a local, regional, national, or international level?

The Winding House is important at a local level for the people of Wellington who continue to use it and its continued association with the Cable Car system, for its role in the development of Wellington's suburbs and transportation systems, and as the oldest surviving mechanical engineering installation in the city.

It is important at a national level due to its association with James Fulton, one of New Zealand's first fully trained and most well known engineers, it is one of only three winding systems in New Zealand that remains in its original position, and of these three is the only one associated with civil purposes.

The Cable Car winding house also has national and international values as a heritage tourism attraction based on the large number of local, national, and international visitors.

4.0 Appendix

Research checklist (desktop)

Source	Y/N	Comments
1995 Heritage Inventory	Y	
2001 Non-Residential heritage Inventory	Y	
WCC Records – building file	Y	
WCC Records – grant files (earthquake strengthening, enhancement of heritage values)	Y	
Research notes from 2001 Non-Residential heritage Inventory	Y	
Plan change?	N	
Heritage Area Report	N	
Heritage Area Spreadsheet	N	
Heritage items folder (electronic)	Y	
HPT website	Y	
HPT files	N	
Conservation Plan	Y	
Searched Heritage Library (CAB 2)	Y	

Background research

Insert any relevant background information into this section. This may include:

- *Additional plans, such as those for alterations*
- *Chunks of text from other sources such as Cyclopedia of NZ, Papers Past*
- *Additional images*