

# National Historic Heritage Workshop 2004

National Library, Wellington, 3-5 August

Department of Conservation,  
Historic Places Trust, and for 2004  
The Institution of Professional Engineers New Zealand.  
Themes: 'Sharing Best Practice' & 'Engineering Heritage'.



**NB:** Most of the files on the CD are Acrobat PDF's. To view click on the link in the right column. The hyperlinked file will open in Acrobat. Along the top menu go to 'window' and in the drop down click 'full screen view' and press enter or mouse click through.

If a small yellow icon appears on the screen hover the cursor on it and the presenter's notes for that slide will appear. Press 'Esc' to finish the presentation.

Adobe Reader (formerly Acrobat Reader) software is free downloadable from [www.adobe.com](http://www.adobe.com)

## TUESDAY 3 August

### Why Engineering Heritage Matters

Keith Baker, BE, MApp Sc MIEAust, is Deputy Chair of the National Committee of Engineering Heritage Australia and combines part time engineering heritage interests with full time employment with the Australian Greenhouse Office.

An electrical engineer with many years of planning, design, construction and maintenance of facilities including the construction of Tullamarine Airport and the redevelopment of Williamstown Naval Dockyard.

Keith's most recent heritage projects have been the interpretation of the engineering features of the Kingston Powerhouse, assessing the heritage significance of the aerials at Belconnen Naval Transmitting Station, and conducting a heritage study of the engineering services of Old Parliament House.

### Presentation links

[PDF - presentation](#)

### Engineers Diary

Lou Robinson, MIPENZ, Fellow of the New Zealand Society for Earthquake Engineering (FNZSEE), CPEng, Civil Engineer, Hadley & Robinson, Dunedin.

Lou has specialised in the engineering of heritage for over 30 years. This presentation covers a range of heritage projects that challenge the creativity of an engineer specialising in that field.

[PDF - presentation](#)

### Heritage Strengthening Engineering

Adam Thornton, Civil Engineer, FIPENZ, Dunning Thornton Consultants Ltd, Wellington. Reviews an engineering practice used when upgrading and adapting heritage buildings for future use. Presenting a range of heritage strengthening projects, including Wellington's St James and Embassy Theatres, and discussing the challenging engineering issues encountered, the client requirements, and the solutions developed.

Adam works as a structural design engineer. In 1993 he gained some prominence for moving the Museum Hotel.

[PDF - presentation](#)

### Concrete Stabilisation

Bruce Petry, Architect, Salmond Reed Architects, Auckland. Presents the outcomes of a DOC research project into the causes of deterioration in concrete structures and remedies acceptable for historic heritage conservation. This was a response to the large number of deteriorating concrete structures managed by the Department, including coastal forts and bridges.

[PowerPoint Presentation](#)

[PDF - Book](#)

### Stone Stabilisation

Jackie Gillies, Conservation Architect, Queenstown, presents the proceedings of a DOC workshop on causes of deterioration in Central Otago stone buildings and remedies acceptable for historic heritage conservation.

[PDF - paper](#)

## TUESDAY 3 August

### **A Fire Risk Evaluation Method For Historic Buildings**

Paul Clements, Sinclair Knight Mertz, Auckland. Fire safety evaluation for heritage buildings presents a unique challenge as typically 15-20 different elements contribute. Counterbalancing the evaluation is the value of the building, both in regard to its historic significance and impact that its loss would have on the community.

Paul presents a methodology that combines the above in a defensible, repeatable matrix, allowing levels of fire safety to be determined, information as to how the levels can be improved if necessary, and an ability to rank buildings with each other to determine best use of funds.

[PDF – presentation](#)

### **Tauranga Suspension Bridge**

Trevor Butler, FIPENZ, Director, Frame Group, Auckland. Tauranga Bridge, built in 1922, is a distinctive ‘multiple cable’ suspension road bridge in the Waioeka Gorge in the eastern Bay of Plenty. As the last surviving example in New Zealand, it is registered category one heritage, and is a popular visitor site. This presentation looks at issues arising from the recent load testing and repair work.

[PDF – presentation](#)

### **Karangahake Steel Truss**

Neville Ritchie, Technical Support, DOC, Waikato Conservancy. The Karangahake ‘Eastern Portal’ bridge, opened in 1905, is a steel truss railway bridge set in the gateway to the Bay of Plenty. It is a key railway relic on the Karangahake Rail Trail. This presentation looks at issues arising from decades of deferred maintenance that threaten the future of the bridge.

[PDF – presentation](#)

### **IPENZ Heritage Recognition Programmes 1990 – 2004**

John Gardiner, MIPENZ, Deputy CEO of IPENZ, Wellington. In 1990 as part of New Zealand’s Sesquicentennial celebrations IPENZ started a formal programme of identification of the nations engineering heritage. It resulted in some 65 sites being recognised through activities celebrating each sites’ heritage and a formal recognition through awarding the site a plaque.

In 2002, IPENZ began recognising heritage at two levels; a ‘database’ listing of items of engineering significance, and a ‘register’ of the more formally assessed items. The paper describes the IPENZ heritage recognition programme.

[PDF – presentation](#)

### **13<sup>th</sup> Biennial Australian Engineering Heritage Conference, Sydney, 2005**

John Heathers, Engineering Heritage Australia, Sydney. The conference is to be held in Sydney in approximately 20-22 September 2005. This is one of the main engineering heritage conferences held in the world and attracts papers from a range of disciplines.

Website address

## WEDNESDAY 4 August ... Stream 1

### **Engineering Heritage and History at Risk**

David Dunsheath, MIPENZ, Wellington. New Zealand’s engineering and industrial heritage is not well recorded. Information and representative artefacts are hard to find and at risk of being lost forever. Few people are aware of the value of this heritage, and for those that are, various factors make their task more difficult. The increasing pace of change, the hidden-from-view nature of some technologies, e.g. electronics, and the corporate culture for out-sourcing require extra vigilance.

IPENZ Engineers use the Internet to enhance preservation of this heritage. This paper builds on that initiative. It discusses problems, opportunities and explores ways widen the public’s awareness and promote their active participation in its preservation.

[PDF – presentation](#)

[PDF – Paper](#)

### **Engineering of Heritage – Comparisons between United Kingdom and New Zealand**

Andrew Marriott, MIPENZ, Gary Chester Consultants, Auckland, worked as a full time Heritage Engineer in the UK in the early 1990s and in New Zealand working, part time, on heritage as a Structural Engineer since 1993. This presentation identifies differences:- scale of projects; numbers of heritage buildings and monuments; funding available for professional advice; age of heritage stock; engineering issues or problems (e.g. cantilever stone stairs, seismic upgrading) and public interest in heritage buildings and monuments.

[PDF – presentation](#)

<p><b>A time-sequenced presentation of the history of the National Grid.</b>          The national electricity grid is a network that has grown over time. Electrical drawings, maps, and system diagrams were retrieved and used to construct a presentation showing a new slide for each year. The presentation was further developed using Flash, and commentary on contemporary social developments added for each time period. The technique is seen to have application for any infrastructure network that is geographically distributed.</p> <p>Presented by:  <u>Stuart Nicholson</u> (Beca), with <u>Tony Silke</u> and <u>Richard Donaldson</u> of Transpower</p>	<p><a href="#"><u>PowerPoint presentation</u></a></p>
<p><b>Heritage and the Inter-Island HVDC (High Voltage Direct Current) link.</b>  <u>Marshall Clark</u>, MIPENZ, Transpower, Wellington. The New Zealand high voltage DC scheme (from Benmore on the south island Waitaki River to Haywards at the south of the north island) is placed in its historical context including the controversy surrounding its initial approval. Highlights of its operation during the near 40 years since commissioning are described. Options are discussed for preservation of at least some portion of the works when the mercury-arc valve stations are decommissioned around 2010-2012.</p>	<p><a href="#"><u>PDF – presentation</u></a></p>
<p><b>Wairakei Geothermal Power Plant – Its Beginnings and Other Aspects</b>  <u>R S Bolton</u>, (MIPENZ), retired engineer. Suggestions were made as early as 1918 for the development of New Zealand’s geothermal resources for power. More attractive alternatives delayed development until severe power shortages in the late 1940s. Drilling began at Wairakei in 1950 in extremely difficult conditions, but by 1953 sufficient steam was available to justify an initial 20MW installation. An abortive proposal to manufacture heavy water concurrent with power generation had a major influence on design an briefly delayed the commissioning of Wairakei Stage I of 69MW until November 1958. The project history and implementation are recorded; use of Wairakei and its technology in contexts beyond any envisaged when investigations started is discussed.</p>	<p><a href="#"><u>PDF – Presentation</u></a></p> <p><a href="#"><u>PDF – paper</u></a></p>
<p><b>Railway Heritage in New Zealand; Progress and Prospects</b>  <u>Euan McQueen</u>, Chairman, Rail Heritage Trust, Wellington. Significant recording and preservation of railway heritage has occurred over the last 60 years. In that time there have been major changes in the national railway system. In the last 20 years changes accelerated to a pace which offered a major challenge to those involved in railway heritage. The paper outlines those challenges, the responses and the results. Some ideas are presented for the future.</p>	<p><a href="#"><u>PDF – paper</u></a></p>
<p><b>Use of Burnt Papa as a Roading Aggregate in Whangamomona and Ohura</b>  <u>H B Dobson</u> (MIPENZ), Rotorua. The use of ‘burnt papa’ (kiln fired local mudstone) as roading aggregate has been documented in eastern Wairarapa and inland Taranaki between 1894 and 1920. Its use in Whangamomona and Ohura Counties is detailed from published records, verbal reports and site investigations while the author was engineer to Taumarunui County and Ruapehu District Council.</p>	<p><a href="#"><u>PDF – presentation</u></a></p> <p><a href="#"><u>PDF – paper</u></a></p>
<p><b>Dawson Falls Power Station</b>  <u>Colin Perfect</u>, Heritage Architect, Wellington and <u>Bill Pitt</u>, Electrical Engineer, Wellington. The small Dawson Falls 75 kW hydro-electric power station on the slopes of Mt Taranaki/Egmont contains rare 100 year old direct current generating equipment that continues to serve the Dawson Falls Mountain Lodge. The presentation describes the installation and indicates how it is proposed to keep it fully functioning into the future.</p>	<p><a href="#"><u>PDF – presentation</u></a></p>
<p><b>Engineering for Defence – problems and solutions</b>  <u>Peter Cooke</u>, Historian, Wellington. When New Zealand embarked upon a major fortification building programme in 1885, it faced a range of engineering problems associated with the remote coastal locations and advanced specifications of armoured buildings with high-tech functions. The engineering solutions applied were not always apparent but involved local modifications to Imperial designs, and the cleverness of local civil engineers. The know-how and can-do approach continued to be applied as long as fortifications were built – until WWII. Peter is convenor of the Defence of New Zealand Study Group.</p>	<p><a href="#"><u>PDF – paper</u></a></p>

WEDNESDAY 4 August ... Stream 1	
<p><b>The Long and Winding Road: a heritage taken for granted</b>  <u>Paul Mahoney</u>, DOC, Wellington and Norm Major, FIPENZ, Civil Engineer, retired. An introduction to the concept of road heritage with examples managed by DOC, Wellington. Movement of goods and people is fundamental. Land based movement is dominated by roads. Roads tend to be continuously improved; there is a need for a systematic approach to understanding and preserving this part of our engineering heritage. The importance of roads in social and economic development is demonstrated. A model of road heritage looks at two fundamental features; alignment and pavement.</p>	<a href="#">PDF - presentation</a>
<p><b>The Lower Karori Dam (1874) - History or Heritage?</b>  <u>Robert E Offer</u>, BE MIPENZ. Supplementary Paper for Wellington Tour. Robert presented this paper to participants who enjoyed the Wellington Tour, Monday 2<sup>nd</sup> August, which included the Karori Wildlife Sanctuary.</p>	<a href="#">PDF - presentation</a>
WEDNESDAY 4 August ... Stream 2	
<p><b>Building Quality in Interpretation: development of new Standards and Handbook within DOC</b>  <u>Fiona Colquhoun</u>, National Coordinator Interpretation, DOC, Wellington. Interpretation is telling the stories of sites to visitors. DOC manages 2,017 interpretation panels and 753 orientation panels are in place at 882 visitor sites throughout New Zealand. The Department is revamping its approach to interpretation with two main improvements; National Standards for brochures and panels and an Interpretation Handbook to guide planning. Currently interpretation is installed or renewed annually at about 20 historic heritage sites.</p>	<a href="#">PDF - presentation</a>
<p><b>Scandrett's Farm, Mahurangi Peninsula: a challenge in the vernacular</b>  <u>Dave Pearson</u>, Conservation Architect, Auckland. In the past whenever the Auckland Regional Council purchased a farm for a Regional Park they generally demolished all the old buildings except the farmhouse. Scandrett's farm had a near complete collection of vernacular farm buildings dating from the 1880s or earlier. This presentation reviews issues encountered during conservation of Scandrett's farm including: a broad approach to identifying value, a philosophical approach to repair work, selecting a suitable contractor and managing budget constraints.</p>	<a href="#">PDF - presentation</a>  <a href="#">PDF - paper</a>
<p><b>The Cullers Refuge</b>  <u>Michael Kelly</u>, Historian Consultant, Wellington. The outcomes of a DOC research project into the purpose, design, and construction of over 600 wild animal control huts built by the Forest Service. Their heritage significance and key representative examples are identified. A heritage framework has been developed for assessing individual huts against the group as a whole. The era of the deer culler and meat hunters is a colourful one and there is a rich literature. Out in the hills all that remains is the huts ... and the deer descendants of the ones that got away</p>	<a href="#">PDF - presentation</a>
<p><b>New Zealand's lighthouses: the impact of the environment on design.</b>  <u>Helen Beaglehole</u>, writer and editor. From the 1850s mariners, settlers, and the government were increasingly aware that lighthouses, whose loom could guide mariners the length of New Zealand's long and largely unfamiliar coastline, were essential for trade and settlement. This paper looks at the small colony's innovative design and construction of lighthouse towers that helped it erect that critical <i>system</i> of lights, and at the consequences for maintenance.   Helen's book, <i>Lighting the Coast: A history of New Zealand's coastal lighthouses</i> is to be published next year.</p>	<a href="#">PDF - presentation</a>  <a href="#">PDF - paper</a>
<p><b>Light House Heritage</b>  <u>Michael Kelly</u>, Historian, Wellington. The outcomes of a DOC research project into the cultural heritage values of lighthouses. There are 28 principal lighthouses in New Zealand and they all have strong community cultural associations. Which of them are key representative examples in terms of history and physical type? A heritage framework has been developed for assessing individual lighthouses against the group as a whole.</p>	<a href="#">PDF - presentation</a>
<p><b>Archaeological Site Recording: Auckland Islands</b>  <u>Rachael Egerton</u>, Technical Support, DOC, Southland. The location and extreme environments of Subantarctic Islands pose many unusual challenges. Having adequate records and understanding of</p>	<a href="#">PDF - presentation</a>

## WEDNESDAY 4 August ... Stream 2

<p>historic heritage is the first building block in ensuring informed prioritisation, appropriate management decisions, and adequate conservation planning can be undertaken. This paper presents an overview of the methodology employed to overcome a serious lack of knowledge about Historic Heritage in the Auckland Islands. A project between Southland Conservancy and SRU from 2002-04.</p>	
<p><b>Archaeological Site Recording: Auckland Islands</b> <u>Kevin Jones</u>, Archaeologist, DOC, Science &amp; Research Unit, Wellington. Core data came from the New Zealand Archaeological Association site recording scheme. The Southland Conservancy Historic Heritage Database was employed to manipulate the information through the project and will assist in transferring the information into management directions. The Department is the largest single entity managing archaeological sites with around 10,000 on the database. It is investigating more cost effective methods of achieving quality records and implementing on-going monitoring systems.</p>	<a href="#">PDF-presentation</a>
<p><b>Waihohonu Hut: 100 years of Tourism</b> <u>Karen Wolbers</u>, Historic Programme Manager, DOC, Tongariro. The New Zealand Tourism Department, founded in 1901, was the first national tourism organisation in the world. It embarked on a programme of strategic development of tourism infrastructure. The key North Island route promoted was the Auckland – Waitomo – Rotorua – Taupo – Tongariro – Wanganui River. In 1904 Waihohonu hut was built to fill a missing link in the accommodation required to sell this package. Such was its success that the hut’s role was eventually superseded by the magnificent Chateau hotel.</p>	<a href="#">PDF - presentation</a>
<p><b>Registering Maori Heritage</b> <u>Te Kenehi Teira</u>, Kaihautu, National Manager Maori Heritage, Historic Places Trust, Wellington. The Trust has created a position specifically to progress the registration of Maori heritage, signalling a significant commitment to increased outputs in this area of heritage recognition and protection.</p>	<a href="#">PDF - presentation</a>
<p><b>Heritage Management Guidelines for Resource Management Practitioners</b> <u>Yvonne Legarth</u>, Central Region Manager, Historic Places Trust, Wellington. The principal tool for protecting historic heritage is the Resource Management Act. The Trust has just released a practical guideline for practitioners on procedures for achieving protection. This presentation will outline some of the key issues involved in this work.</p>	<a href="#">PDF - presentation</a>
<p><b>Some Historic Heritage Initiatives</b> <u>Aidan Challis</u>, Senior Policy Advisor, Historic Places Trust, Wellington</p> <p>This presentation outlines three significant developments within the Trust:</p> <ul style="list-style-type: none"><li>• Historic Places Act Amendments Bill</li><li>• Heritage Registration Review of Professor Skelton</li><li>• The Trusts new Incentive Fund</li></ul>	<a href="#">PDF - presentation</a>

## THURSDAY 5 August

<p><b>Creative Re-use of Industrial Heritage Sites</b> <u>Ivar Nelsen</u>, Manager, Public Land Management – Historic Places, Department of Sustainability and Environment, Melbourne, Victoria. Creativity is the key to re-establishing the relevance to industrial/engineering heritage sites to communities. Increasingly, large industrial/engineering sites are being regenerated as both community and museum venues to provide an animated and active environment for both visitors and locals to be exposed to, and appreciate, our industrial heritage. The presentation will focus on two successful examples, the TASRail workshop complex in Launceston, Tasmania and the Duisburg-Meiderich steel complex in the Ruhr Valley in Germany, but will include others from Australia and Europe as well.</p>	<a href="#">PDF - presentation</a>
<p><b>Interpreting Port Craig</b> <u>Rachael Egerton</u>, Technical Support, DOC, Southland Conservancy. Port Craig was the site of New Zealand’s largest and most technically advanced sawmill in the 1920’s. It proved to be an over-ambitious concept, both the engineering and business aspects, and it closed in 1930, a victim of the Depression. Today the site is a popular one for visitors seeking a remote experience and is an</p>	<a href="#">PDF - presentation</a>

**THURSDAY 5 August**

<p>overnight stop on the Hump Ridge Track. This presentation shows how this interpretation opportunity has been developed. (The nearby Percy Burn wooden viaduct is a highlight of the Hump Ridge track and received an IPENZ 1990 plaque.)</p>	
<p><b>Interpreting Arrowtown Chinese Settlement</b>  <u>Peter Bristow</u>, Technical Support, DOC, Otago Conservancy. The identification and conservation of the Arrowtown Chinese Settlement by Neville Ritchie in the late 1970's broke new ground in recognition of the heritage of cultural minorities in New Zealand. The site attracts 120,000 visitors annually and recently had a major upgrade, re-restoration of Lumb's store and new site interpretation.</p>	<p><a href="#">PDF - presentation</a></p>
<p><b>Interpreting Ruapekapeka Pa</b>  <u>Shaughan Anderson</u>, Historic Programme Manager, DOC, Whangarei. Ruapekapeka Pa is a significant site for both the land wars and for military engineering. It is managed by the DOC in conjunction with tangata whenua. Phase one of a major upgrade was recently completed which included a concept plan, developing interpretation, a very fine site entrance carving reasons, and a dawn completion celebration.</p>	<p><a href="#">PDF - presentation</a></p>
<p><b>Audio Interpretation</b>          Sebastian Wilberforce, New Zealand On the Inside, Wellington. Scoping the option to use portable audio players as a medium to provide interpretation messages to visitors individually, usually in conjunction with a walking trail with numbered sites. It has the advantage of avoiding panels where they may be intrusive and avoiding having broadcast audio messages where they may conflict with one another or be intrusive.</p>	<p><a href="#">PowerPoint presentation</a></p>
<p><b>10 Years of Volunteers at Molesworth</b>          Colin Davis, Historic Programme Manager, DOC, Blenheim. A review of 10 years practical experience of running volunteer programs on the legendary Molesworth Sheep station in the Marlborough back country. It looks at issues to do with recruitment and retention of volunteers, organising work programs to match their skills, health and safety issues, and entertaining, feeding and accommodating them.</p>	<p><a href="#">PDF - presentation</a></p>
<p><b>Manawatu/South Taranaki Floods: Marae Assistance</b>          Dean Whiting, Pouarahi Whakaora Taonga/Maori Built Heritage Conservator, Historic Places Trust. The devastation of the February 2004 floods affected a number marae in the Manawatu and South Taranaki region. Two were directly damaged by flood waters in the Waitotara and Whangaehu valleys. The NZHPT provided advice and training for the clean up work and learned valuable lessons that could assist other heritage buildings affected by flood disaster in the future.</p>	<p><a href="#">PDF - presentation</a></p>
<p><b>Brunner Bridge Restoration</b>          Jo Bain, Heritage Advisor, Historic Places Trust, Christchurch. A major \$800,000 restoration of a suspension bridge built in 1876 to provide rail access to the Brunner Coal Mine. Engineers Montgomery Watson Harza lead the technical design side of the project. The project was jointly managed by Historic Places Trust, Grey District Council and the Department of Conservation. The bridge had be closed and its retention was essential as a landmark feature of the historic site.</p>	<p><a href="#">PDF - presentation</a></p>
<p><b>Next workshop is likely to be in Christchurch on 11-13 October 2005.</b></p>	