Arahura River Bridge

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Last amended: 3 September 2012

Arahura Bridge – Howe Truss, circa 2010. Image courtesy of Heritage West Coast
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A. General information

**Name:** Arahura River Bridge Span

**Alternative names:** Arahura Bridge; Arahura Bridge Heritage Park Span; Arahura Combined Road and Rail Bridge; Arahura Road/Rail Bridge; Bridge 28 Hokitika Line

**Location:**
Arahura Bridge Heritage Park
State Highway 6
Arahura
West Coast/Buller

**Geo-reference:** Latitude: -42.672, longitude: 171.030

**Legal description:** Pt Māori Reserve 30, Westland Land District

**Access information:** The Arahura Bridge Heritage Park is located to the east of the current State Highway 6 bridge across the Arahura River, midway between Greymouth and Hokitika. The park is a public facility.

Image courtesy of GoogleMaps
City/District Council: Westland District Council

IPENZ category: Engineering Work
IPENZ subcategory: Infrastructure – Bridge
IPENZ Engineering Heritage number: 2168
Date registered: N/A
Other IPENZ recognition: N/A

Other heritage recognition:

- New Zealand Historic Places Trust: Classification removed [after bridge demolished]
- Local Authority District Plan: Westland District Plan, Appendix A: Historic Places, Reference no. 25 (operative 1 June 2002)
- New Zealand Archaeological Association Site Recording Scheme: J32/109 [for the site of the former bridge]
B. Description

Summary

The Arahura River Bridge, demolished in 2009, was a Howe truss, timber, single lane, combined road and rail bridge on State Highway 6, over the Arahura River (between Greymouth and Hokitika). The bridge was an important link in the West Coast's transport network for around 110 years, and was a rare remaining New Zealand example of a large timber truss bridge.

The construction of the Arahura River Bridge, as part of the Hokitika-Greymouth railway, was begun in 1886, and was supported by local politician and Premier of New Zealand, Richard Seddon (1845-1906). The County Council had bad luck with road bridges across the Arahura River, mostly because of severe floods, and they successfully petitioned the government to have road decking added to the bridge, creating a combined road and rail bridge in 1891. The railway was not opened until late in 1893.

The bridge’s 211 metre (m) length comprised seven 24.4 m truss spans, and it had 11 timber stringer spans. The trusses were a standard Public Works Department (PWD) type, and the Arahura River Bridge was originally built in local black birch, with some iron tension members. This typical PWD bridge design was developed by its Engineer in Chief, John Blackett (1818-1893).

One of its Howe trusses was retained and is now the centrepiece of the Arahura Bridge Heritage Park, close to the site of the former bridge. The remaining span serves as a memorial to the former structure. The park’s display includes educational material about the history of the former Arahura River Bridge.
Historical narrative

New Zealand timber truss bridges once numbered in the thousands, but because of the nature of the material, they are now relatively endangered as a bridge type, and the story of the Arahura River Bridge is representative of this.¹

The West Coast of the South Island features many rivers flowing down from the alps to the sea. In particular, the Arahura River is noted for its greenstone, and this drew Māori to the region and motivated the creation of early trade tracks between the east and west coasts.² The West Coast gold rush in the 1860s saw a sudden influx of people to the area, who quickly discovered that many of these rivers were difficult to cross.³

The Māori and European population of the entire West Coast was estimated to have been about 300 in 1863. The immense impact of the gold rush can be seen as that number more than trebled in Hokitika alone by little over a year later. By 1867 the West Coast was home to nearly 29,000 people.⁴ Towns were quickly established and as well as transport routes. Christchurch’s Press described the scene travelling north from Hokitika and the Arahura River in November 1865:

This is an extensive stream, and, like every other river on the coast is subject to sudden and violent flooding, at which period it is unfordable; but that difficulty is now obviated, there being plenty of boats plying to convey travellers across.⁵

Double rates were charged by ferries when the river was in flood, due to the extra risk. If the traveller preferred to wait they could always find refreshment in the three public houses, or the store, built around the crossing site. As settlement and traffic increased between the two main towns of Greymouth and Hokitika, to the north and south of the Arahura River, there was soon enough demand for a bridge to be constructed.

¹ Geoffrey Thornton, Bridging the Gap: Early bridges in New Zealand, 1830-1939, Auckland, 2001, p.90
³ Pickering, Mark, The Southern Journey: A history of the travelling routes along the coast of Westland, Christchurch, 1993, 41
⁴ Nathan
⁵ 'West Coast Gold Fields,' Press, 25 November 1865, p.3
The first bridge over the Arahura River seems to have been constructed in 1866. Apparently this was a private bridge, and in 1871 a public road suspension bridge was also completed. In 1880 one of these early bridges was partially destroyed in a flood which led to considerable public pressure for the government to hurry into action plans for a railway bridge over the Arahura River, as well as help the County Council financially to repair the existing road bridge. This cause seems to have been taken up by Richard Seddon (1845-1906). Seddon had a vested interest in the topic because at this stage the future Premier of New Zealand was the Chairman of the Arahura Road Board, and had previously been elected as the Westland Provincial Council’s Arahura Riding representative. The flood damaged bridge was repaired by the end of the 1880, but it would be several years before a planned rail bridge, which was quickly converted into a combined road bridge, was completed to replace the earlier structure. On a ministerial visit to Arahura in 1885 Seddon, now Premier, assured constituents of his support for the Hokitika-Greymouth railway bridge over the Arahura River.

Given the long public interest in the railway and Arahura River Bridge, locals would have been agog with the prospect of its construction and impatient for its completion. The design of the Howe truss timber bridge was a standard Public Works Department (PWD) type, which had been developed by John Blackett (1818-1893). Blackett was the PWD Engineer in Chief during the period when the Arahura River Bridge was constructed. Tenders for the construction of the bridge were called in early 1886, the successful tenderer being Greymouth firm, R. McKenzie and Company. Construction was not without difficulty. Floods, typical of the Arahura River, washed

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6 *West Coast Times*, 1 November 1866, p.3; *West Coast Times*, 15 August 1867, p.3. ‘Resident Magistrates Court,’ *West Coast Times*, 30 October 1867, p.2. The location of the bridges is unclear. Two Arahura River bridges were described in 1906 as upper and lower but further clarification as to exactly where, and specifically which bridges it refers is not given. Cyclopedia Company Limited, ‘Westland County Council,’ *The Cyclopedia of New Zealand [Nelson, Marlborough & Westland Provincial Districts]*, Christchurch, 1906, p.491
7 ‘Hokitika, 27 January,’ *Evening Post*, 28 January 1880, p.2; ‘Public works in Westland,’ *West Coast Times*, 26 February 1880, p.2; ‘Public Meeting at the Town Hall,’ *West Coast Times*, 5 March 1880, p.2
8 ‘Westland County Council,’ *West Coast Times*, 10 March 1880, p.2; David Hamer, ‘Seddon, Richard John – Biography,’ from the Dictionary of New Zealand Biography, Te Ara - the Encyclopedia of New Zealand,
10 ‘The Ministerial Visit,’ *West Coast Times*, 12 February 1885, p.2. Seddon continued to be involved and followed up on the progress of getting the bridge started with the Minister of Public Works, ‘The Arahura Bridge,’ *Grey River Argus*, 2 February 1886, p.2
11 ‘Arahura Combined Road & Rail Bridge (Register no. 5009),’ New Zealand Historic Places Trust database entry (last updated 29 March 2012)
away some of the contractor's plant in early 1887. The cast iron piers from England were also delayed. However, the structure was completed later that year, ahead of schedule. It was reported that the bridge “…although not a beauty to look at, most favourably impresses one with its power of resisting floods and standing the hard treatment it may assuredly expect from the Arahura.”

The Arahura River Bridge underwent its first alteration even before the Hokitika-Greymouth railway was finished in 1893. At the same time as the railway bridge was being constructed, the Westland County Council was struggling to maintain the road bridge which seems to have consistently sustained damage during floods. Therefore, in 1887 they proposed approaching the Government to volunteer to pay for the new railway bridge to also be made suitable for road users. The Council agreed that they would be happy to share the maintenance cost of the structure if it were a combined road and rail bridge. However, when this was suggested to the Minister of Public Works, Edward Richardson (1830/1831-1915), he responded that Crown law advice was that “the County Council had no power to expend its funds on the construction of a bridge which is, and must continue to be, the property of the Queen.” This was an odd reply which seemed to mystify even Richardson because, as it was pointed out at the time, the roads and other property under the jurisdiction of the County Council were also the property of the Queen. An accord seems to have been eventually struck though, and in 1891 timber planking was added to the deck of the Arahura River Bridge to make it a combined road and rail bridge.

The bridge continued to be an important link in Westland’s road and rail network for over a century. However, being a single lane combined road and rail bridge, the Arahura River Bridge was the scene of several incidents and near misses between road traffic and trains over its lifetime. For example, in 1911 a cart driver narrowly escaped a collision with an on-coming train after his horse slipped over in fright, trapping the man underneath. Fortunately the locomotive was able to brake in time. Other people risked their lives through impatience, wanting to get across before a

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13 ‘Arahura Bridge and Protection Works,’ West Coast Times, 17 March 1888, p.2; ‘Floods on the West Coast,’ Evening Post, 30 March 1887, p.2
14 Arahura Combined Road & Rail Bridge (Register no. 5009); F. W. Furfert, Early New Zealand Engineers, Wellington, 1953, pp.117-18
15 ‘Arahura Bridge and Protection Works’
16 West Coast Times, 5 July 1887, p.2; ‘The Public Works Statement,’ Grey River Argus, 13 December 1887, p.2; West Coast Times, 15 April 1893, p.2
17 Westland County Council,” West Coast Times, 13 July 1887, p.2
18 West Coast Times, 3 October 1887, p.2
19 Ibid.
20 ‘Public Works Statement,’ Wanganui Herald, 9 September 1891, p.2
train, or other on-coming traffic, delayed their travel. However, the death of child Jacqueline Elcock in 1951, as a result of a crash between the car she was in and a train was blamed on weather conditions causing poor visibility.\textsuperscript{21} There were many bridges similar to the Arahura River Bridge on the West Coast and it is perhaps surprising that up until the middle of the 20\textsuperscript{th} century there was no mode of traffic control or warning at them. The exception to this was the Taramakau Bridge, which had a bridge keeper to stop road traffic when trains approached.\textsuperscript{22}

In 2001 Geoffrey Thornton described the Arahura River Bridge as “the most well-known timber road and rail bridge in the country.”\textsuperscript{23} At the time it was also one of only four remaining single deck combined road and rail bridges in New Zealand, and a rare remaining New Zealand example of a large late 19\textsuperscript{th} century timber bridge. However, within a decade it was demolished and all that remains is a relocated single example of one of its seven Howe truss spans. It was in December 2006 that ONTRACK and Transit New Zealand announced the over 120 year old bridge would be replaced. There were several motivating factors: primarily the cost of maintaining the timber structure, the comparatively limited life of its components, and also because of the inconvenience caused by the bridge being single lane.\textsuperscript{24} In a study of

\textsuperscript{21} Paul Mahoney, ‘Arahura Combined Road/Rail Bridge,’ unpublished research notes. Arahura Bridge research folder
\textsuperscript{22} John Saunders to Hon. W. S. Goosman, 7 December 1951. Copy of a letter held at Archives New Zealand, Christchurch. Arahura Bridge research folder
\textsuperscript{23} Thornton, colour plate p.2
timber truss bridges in 2011, Michael Kelly noted that these were common reasons for the replacement of timber bridges, as well as the demand for increased load capacity because of modern vehicles being more powerful and heavy than those for which the structures were originally designed.\(^{25}\)

Once a staple of New Zealand’s road and rail network, there are very few timber truss bridges which remain and “some of the best surviving examples have recently been pulled down.”\(^{26}\) When he made this statement Kelly no doubt had in mind structures like the Arahura River Bridge, and the Cobden Railway Bridge which was formerly just north of Greymouth and demolished in 2006.\(^{27}\) The heritage significance of the structure had been recognised by the New Zealand Historic Places Trust with Category 1 historic place registration. However, this registration had to be removed when the structure was demolished in 2009 as it no longer qualified as a historic place under the Historic Places Act 1993.\(^{28}\) The Arahura River Bridge is commemorated through its remaining span now being located close to the former bridge’s site, in the Arahura Bridge Heritage Park, created in 2010 (see title page).\(^{29}\)

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\(^{26}\) Kelly, p.5  
\(^{27}\) Chris Cochran and Russell Murray, ‘Bridge 1 Rapahoe, Greymouth: Documentation of structure for OnTrack,’ OnTrack, 15 June 2007, p.1  
\(^{28}\) ‘Arahura Combined Road & Rail Bridge (Register no. 5009)’  
\(^{29}\) ‘Arahura Bridge Heritage Park,’ Heritage West Coast, URL: http://heritagewestcoast.co.nz/?page_id=290 (accessed 3 April 2012)
Social narrative

The modification of Arahura River Bridge for road traffic in 1891, and its inclusion in the Hokitika-Greymouth railway was the result of many years of campaigning by locals for a new and reliable bridge over the forceful Arahura River. Bridges were of great importance to settlements around New Zealand because they were a way to mitigate the high drowning death toll by eliminating the need to ford or ferry across potentially dangerous waterways, like the Arahura River.

There had been bridges over this river since the 1860s but the Arahura River Bridge was met with warranted enthusiasm as it demonstrated greater fortitude in withstanding its conditions than its predecessors seem to have done. Therefore, when it was extant, the Arahura River Bridge had considerable social significance for over a century as an important part of the main transport route between Greymouth and Hokitika, for both road and rail traffic. The structure had considerable landmark values, especially in the late 20th century when this bridge type was becoming more and more rare, and this made it interesting to tourists.\textsuperscript{30}

The sole remaining span is a memorial to the structure’s over a century long service, and therefore it is likely to have some value to the road and rail users of the West Coast who were familiar with the structure when it was part of the transport networks. The remaining span of the Arahura River Bridge is located within a public park and the display features educational material about the history of use of the structure and early bridges in general.

\textsuperscript{30} Paul Mahoney, ‘Arahura Road/Rail Bridge,’ IPENZ National Engineering Heritage Committee report, 2000
Physical narrative

The Arahura River Bridge was 211 m long, the majority of this length consisting of seven 24.4 m long Howe trusses. The Howe truss was invented by American William Howe (1803-1852) in 1840. This type of truss has a combination of timber and metal members, usually iron or steel. Howe trusses, along with Warren trusses, were the most popular types used in New Zealand bridges from the mid to late 19th century.

Bridges predominantly constructed from timber were among the first built in New Zealand because of the availability of native timbers, as well as Australian hardwoods, compared with steel and concrete. In the case of the Arahura River Bridge local black birch was originally sourced, and some kauri was also used. Many early timber bridges also had timber piers. However, because of the force of the Arahura River large imported cast iron cylinders were used as caissons sunk deep into the river bed, and then filled with concrete.

The structure was demolished in 2009 and the only remnant is one of its Howe trusses, which was relocated to a nearby park of which it is the centrepiece. A set of piers appears to have been retained upon the structure’s demolition and are also incorporated into the current display. Elevating the span and landscaping underneath with river rocks shows an attempt has been made to reference the fact that the span once had a functional purpose bridging the nearby river.

Key physical dates

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>1886-87</td>
<td>Constructed</td>
</tr>
<tr>
<td>1891</td>
<td>Road decking added</td>
</tr>
<tr>
<td>2009</td>
<td>Demolished and a single span of the former bridge is retained</td>
</tr>
<tr>
<td>2010</td>
<td>Arahura Bridge Heritage Park created, featuring the relocated span</td>
</tr>
</tbody>
</table>

31 ‘Arahura Bridge and Protection Works’; Thornton, p.102
32 Thornton, pp.86-87, 296
33 Ibid., p.90
34 ‘Arahura Bridge and Protection Works’
35 Arahura Combined Road & Rail Bridge (Register no. 5009)
**C. Assessment of significance**

While extant, the Arahura River Bridge had considerable engineering heritage significance as a rare remaining, and representative, example of a late 19th century Public Works Department timber bridge, and also because it was one of only a few New Zealand combined road and rail single deck bridges still in existence. However the structure was demolished in 2009. The remaining relocated span of the Arahura River Bridge has limited significance as a monument commemorating the over a century long service of the former structure, and as an example of a late 19th Howe truss.

Therefore, the Arahura River Bridge Span is of sufficient engineering heritage significance to merit inclusion on the IPENZ Engineering Heritage Record.
D. Supporting information

List of supporting information

Link to: ‘Blackett, John (1818-1893),’ IPENZ Engineering Heritage, URL:

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