

**An Archaeological Assessment
of the Proposed Kaihu Valley Trail
for the Kaipara District Council**



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September 1887, page 6

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Kaihu Valley Railway

1.0 Introduction

The Kaipara District Council (KDC) is preparing to develop the Kaihu Valley Trail (KVT) a proposed 42 km recreational walking and cycling track running north from Dargaville up the Kaihu River valley to Donnellys Crossing. The KVT will follow along sections of the former rail corridor of the historic Kaihu Valley Railway (KVR) (Fig. 1). The KVT is planned to eventually form part of the Ancient Kauri Trail Byway that will be developed in stages and eventually link the Hokianga Harbour to the Mangawhai Coast (KDC 2017).

The KVT project is a joint initiative between KDC, the Northland Transportation Alliance Waka Kotahi, Te Roroa Iwi, the Northland Chief Executive's Forum and Northland Inc. The Department of Conservation (DoC), as owner of part of the former railway corridor land, is also a key stakeholder and member of the Project Advisory Board.

The KDC commissioned an archaeological assessment to assess the potential effects of the proposed trail project (the Development) on archaeological and historical values along the route. This report is intended to identify requirements under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPT Act). Archaeological and historic sites pertaining to the railway were located and described for the report. Statutory requirements are identified and recommendations are made relating to mitigation where it is considered that there may be potential effects on archaeological values.

The trail will be located on a combination of KDC and DoC reserve land (disused former railway corridor), road reserve, and privately owned land. It is planned to cross State Highway 12 (SH12) twice.

A list of titles of land the proposed trail involves is included as Appendix One. Most of the proposed route is owned/managed by KDC or DoC.

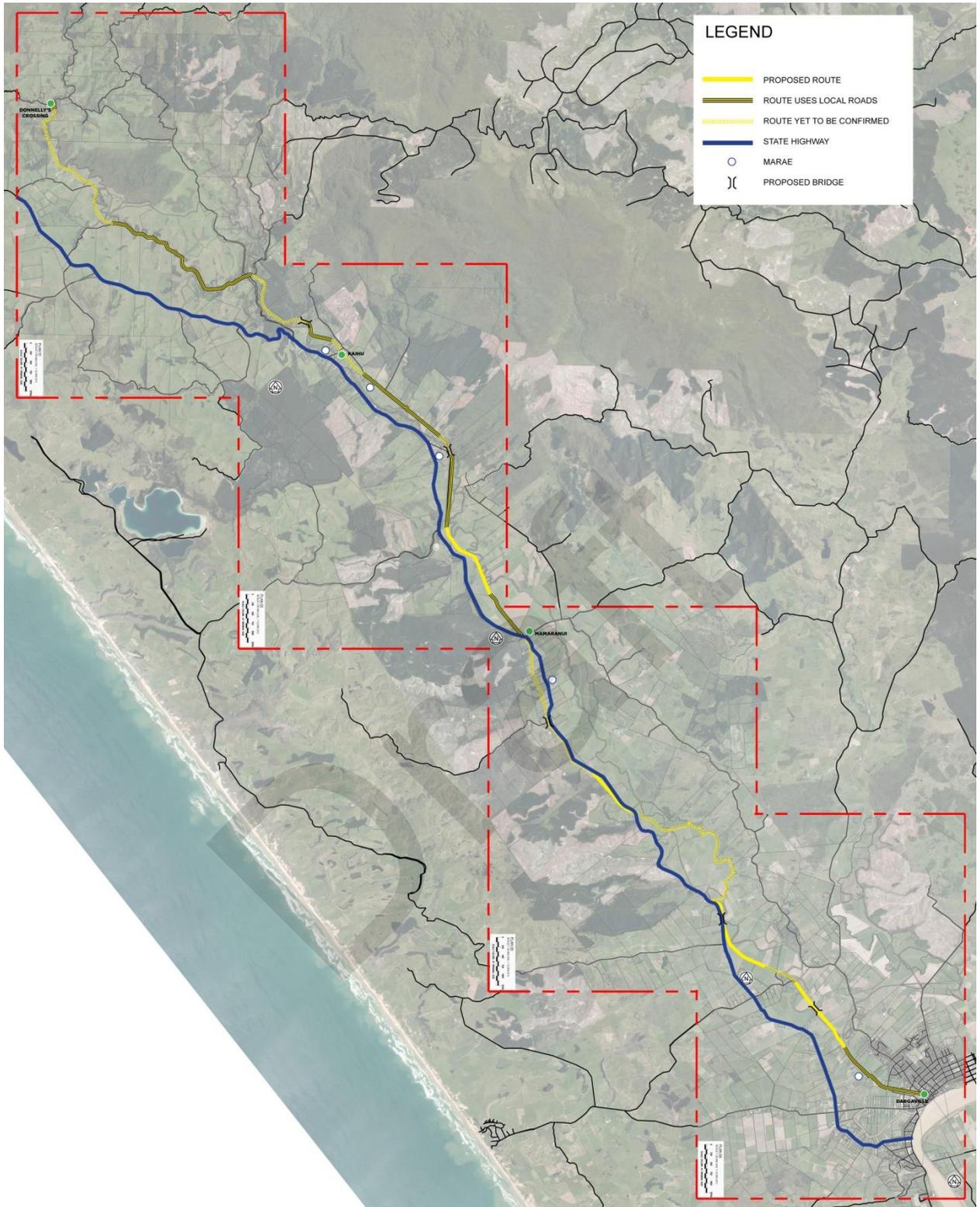


Figure 1: Location of the Kaihu Valley Trail running north from Dargaville, Kaipara District. See Appendix 2 for additional and larger images showing the KVT route.

2.0 The Development

KDC is seeking resource consent to construct a new walking and cycling trail from Dargaville to Donnellys Crossing that follows the historic railway formation originally constructed for the Kaihu Valley Railway Company in the late 19th century (Figure 1). Appendix 2 contains maps with more detail of the proposed KVT route. The route was determined from consultations with landowners, engineering requirements, impact on the environment, and costs.

A description of the proposal extracted from the Assessment of Environmental Effects (AEE)(Kane 2021) is included in this report as Appendix 3. Details for this section of the assessment have been drawn from the AEE which recognises that the trail will go along the old railway formation and that archaeological and heritage values will be affected (Kane 2021: 29). Compliance with Authority and consent conditions are expected to adequately manage adverse effects on heritage values.

The KVT is approximately 42 km long¹. Approximately 22 km of the proposed trail route will be off-road. The formed width of the off-road trail will be approximately 3 m within a trail corridor planned to average about 4 m wide. The corridor will be fenced generally with standard farm fencing. Typical cross sections of the trail are included as Appendix 4.

Planned earthworks on the KVT will be substantial and will occur over an estimated maximum area of approximately 66,000m². The maximum approximate volume of cutting (primarily removal of topsoil) will be 19,800m³ and the maximum volume of fill will be approximately 33,000m³. Fill will be an aggregate that will be compacted to form the new trail surface. It is expected that the actual volumes of cutting (and potentially fill) will be much lower than these maximum estimates due to the ground conditions that exist along the railway embankment. Much of the embankment is largely flat and reasonably well compacted and may require less cutting and filling.

¹ The AEE state that the KVT will be approximately 42 km long. Other historic sources give slightly lesser distances for the length of the KVR, but the 42 km is accepted as the distance in this report.

The off-road sections of the trail will provide five bridge structures including over the Kaihu River; a small tributary just north of Babylon Coast Road, the Waitakahuruhuru Stream (near Maitahi), the Kaihu River (near Ahikiwi), and the Waingarara Stream (near to Baker Road). These structures are anticipated to be designed as single span bridges with any piles and/or abutments located outside of the watercourses and to not require works within the beds or banks of the watercourses they cross. Discrete and limited earthworks will likely be required to construct the bridges. The design for the bridges has yet to be confirmed, but it is not anticipated that earthworks will exceed approximately 50 m³ for all the bridges combined. The bridges will be constructed in two stages with Stage 1 including the Kaihu River Bridge, Ahikiwi Bridge and Baker Road Bridge and Stage 2 the Babylon and Maitahi bridges and also the Aranga Station Road bridge.

Culverts and/or minor structures will also installed (or extended where existing structures occur) to cross open drains or watercourses at several locations along the proposed route. The culverts will be designed to meet the relevant permitted activity criteria in the Proposed Regional Plan for Northland². Further details of the management of the bridge and culvert construction are included in the AEE.

Approximately 20 km of the trail will follow along existing local rural roads that have low volumes of traffic. These include Station Road, Mamaranui Road, Ahikiwi Road, Kaihu Wood Road, Opouteke Road, Trounson Park Road and Aranga Station Road. Parts of Mamaranui, Ahikiwi, Kaihu Woods and Aranga Station Road follow the old railway route. No earthworks are proposed where the KVT will be located on low volume roads. These sections of the track will not require an archaeological Authority application. Small sections of Opouteke and Donnellys Station Roads will also be utilised. Any earthworks necessary for crossing on SH12 are proposed to be limited.

Consultation with some landowners over the proposed route is on-going. Land can be included in an archaeological Authority application without owner's permission, but such permission must be obtained before an HNZPT Authority can be activated.

² <https://www.nrc.govt.nz/your-council/about-us/council-projects/new-regional-plan/>

The KDC Northland Economic Action Plan includes the “Byways” concept developed to help revitalise Northland’s Twin Coast Discovery Highway. Themed Byway routes have been designed to create tourist journeys around areas of Northland. The KVT will become part of the ‘Ancient Kauri Trail’ Byway developed for the area in the west of Kaipara District planned to encourage tourists to stop and explore points of interest. The Ancient Kauri Trail begins at Maungaturoto, extends through to Dargaville, and then heads north through the Waipoua Forest to the Hokianga Harbour. The Byway will highlight the towns and significant features of the area, including the Matakohe Kauri Museum and Tane Mahuta. The proposed KVT walking and cycling route is a part of this strategy.

The KVT will provide new opportunities for tourists and local businesses with additional visitors attracted to the Kaihu River valley and the Kaipara District. Funding for the project is from the Infrastructure Reference Group (Provincial Growth Fund) provided to KDC to progress the design and construct the trail. KDC has promoted the concept of the trail for some years (KDC 2017).

3.0 Methodology

Archaeology North Ltd undertook an assessment to identify potential archaeological sites during the April-June 2021. The assessment is based on background research and a preliminary field survey. The field survey was carried out generally in fine weather. Access to the route was gained through public roads and existing farm tracks.

Photographs of the remains of the KVR and related facilities were taken and their locations recorded with a Garmin 60cx GPS. Most of the survey involved walking along the old railway formation, the focus of the survey.

The assessment included a review of published and unpublished literature covering the history of the Kaihu valley and surrounding area and railway histories for relevant information. Significant resource on the history of the railway was provided by the books J. H. Hansen and F.W. Neil 1992 Tracks in the North and Stephen

Fordyce 1998 Longwater. Historical Aspects of the Northern Wairoa and the Kaihu River Valley History website³.

Heritage and archaeological databases and other sources were also searched for recorded sites and consulted for this report included:

- The New Zealand Archaeological Association (NZAA) on-line site database, ArchSite⁴, was searched for recorded archaeological sites in the project's vicinity.
- The Northland Regional Council and KDC District Plan schedules were checked for scheduled sites.
- The Heritage New Zealand Pouhere Taonga (Heritage NZ) List/Rarangi Korero.
- The HNZPT Digital Library⁵ was searched for relevant reports from past archaeological surveys and investigations in the Kaihu valley and wider Donnellys Crossing to Dargaville area.
- Papers Past⁶, the National Library website, with on-line editions of 19th and 20th century newspapers, was searched for historic reports on the Kaihu Valley Railway. This site was of particular value.
- Early survey plans and surveyor's notebooks of the area held at Land Information New Zealand (LINZ) and Archives New Zealand and other sources for information relating to archaeological or historic sites.
- A large collection of scans of historic plans of the KVR from the original surveys of the railway available on-line were included in the assessment downloaded from Archives New Zealand (but these cannot be reproduced without permission as the scans are copyright).
- Assistance was also provided by Liz Clark and Mark Schreurs who shared their knowledge and provided information from their records on the railway.
- In addition, Archaeology North have over 30 years of experience in surveying and recording archaeological sites in the Dargaville to Waipoua area. This has been drawn upon and informed our assessment of the KVT.

³ <https://kaihuvalleyhistory.com/>

⁴ <http://www.archsite.org.nz/>

⁵ <https://www.heritage.org.nz/protecting-heritage/archaeology/digital-library>

⁶ <https://paperspast.natlib.govt.nz/newspapers>

- Further research beyond the scope of this assessment would be warranted using collections of information and plans of the KVR held at the Auckland Public Library (closed at present), Archives New Zealand and at other repositories.

Ten days were spent walking along the proposed route for the KVT in April-June 2021 by Archaeology North archaeologist, Tore Kronqvist (M.A. Hons), from Waihue (near to Dargaville) with Laurie Joseph and Dawn Birch, from Te Roroa in Waipoua Forest, who are trained and regularly work as archaeological assistants. The archaeological inspections involved a traverse of most of the proposed KVT route, with detailed ground inspections of selected localities. Written notes, GPS locations, and photographs were taken at points of interest as the survey progressed and the results are summarised in this report. Some sections of the route were not surveyed as access was always not possible (Section 9.1). Modern images in the report were taken during the assessment by Dawn Birch, Tore Kronqvist or Suzanne Reinholds.

4.0 Statutory Framework

There are two main pieces of legislation in New Zealand that control work affecting archaeological sites. These are the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPT Act 2014) and the Resource Management Act 1991 (RMA). Heritage New Zealand Pouhere Taonga administers the HNZPT Act. HNZPT have provided a template that outlines the legislative framework for archaeological assessments (2019). This report generally follows that template where appropriate.

4.1 The Heritage New Zealand Pouhere Taonga Act 2014

The 2014 HNZPT Act protects archaeological sites in New Zealand from damage and destruction. The Act contains a consent (archaeological authority) process for any work affecting archaeological sites, where an archaeological site is defined as:

“Any place in New Zealand, including any building or structure (or part of a building or structure), that—

- *was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and*

- *provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and*
- *includes a site for which a declaration is made under Section 43(1).”*

The Act states that no person may modify or destroy, or cause to be modified or destroyed, the whole or any part of an archaeological site if the person knows, or ought reasonably to have suspected, that the site is an archaeological site. This applies whether or not an archaeological site is recorded with NZAA or is entered on the Landmarks List or the HNZ Heritage List/Rarangi Korero.

Wherever there is a reasonable expectation that an activity may modify or destroy an archaeological site, an Authority must first be obtained from HNZPT. These provisions apply to all archaeological sites regardless of whether the site is known and recorded or whether the site only becomes known about as a result of the activity regardless of whether the activity is permitted under a district or regional plan or a resource or building or other consent has been granted.

Unauthorised archaeological site modification or destruction is a criminal offence and penalties are provided for in the HNZPT Act 2014.

4.2 The Resource Management Act 1991

Further protection of heritage resources and archaeological sites is provided by the Resource Management Act 1991 (RMA 1991). The RMA (S6) requires all persons exercising functions and powers under the RMA recognise and provide for matters of national importance when *‘managing the use, development and protection of natural and physical resources’*.

Included in the matters of national importance:

“the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga” (S6(e));

And

“the protection of historic heritage from inappropriate subdivision, use, and development” (S6(f)).

Historic heritage is defined in S2 of the RMA as:

“those natural and physical places that contribute to an understanding and appreciation of New Zealand’s history and cultures, deriving from any of the following qualities: (i) archaeological; (ii) architectural; (iii) cultural; (iv) historic; (v) scientific; (vii) technological.”

Historic heritage includes:

“(i) historic sites, structures, places and areas; (ii) archaeological sites; (iii) sites of significance to Maori, including waahi tapu; (iv) surroundings associated with the natural and physical resources.”

These categories are not mutually exclusive, and some archaeological sites may, for example, also be places that are of significance to Maori.

Where a Resource Consent is required for any activity, the assessment of effects is required to address cultural and historic heritage matters. There is a duty to avoid, remedy, or mitigate any adverse effects on the environment arising from an activity (S17), including historic heritage.

Regional, district and local plans contain sections that help to identify, protect and manage archaeological and other heritage sites. The plans are prepared under the provisions of the RMA. The Northland Regional (NRC) and the Kaipara District Councils (KDC) are the relevant statutory authorities.

The site of the Aranga Railway Station, part of the KVR, is scheduled in the Kaipara District Plan as No. H85. The scheduled site will not be affected by the development as the KVT follows the road near to it. There are no other archaeological or historic sites scheduled in KDC or NRC plans on or near to the KVT.

5.0 Background & landscape

5.1 Location

The KVT will run most of the length of the Kaihu River valley between Dargaville and Donnellys Crossing⁷ in Northland (Figs. 1, 2). The environment is predominantly rural, comprising farmland and some areas of forestry areas. Dargaville is the largest urban centre in the Northern Wairoa area. The trail will pass through a number of small settlements including Ahikiwi, Mamaranui, Maropiu, Kaihu, Whatoro, Aranga and Donnellys Crossing.

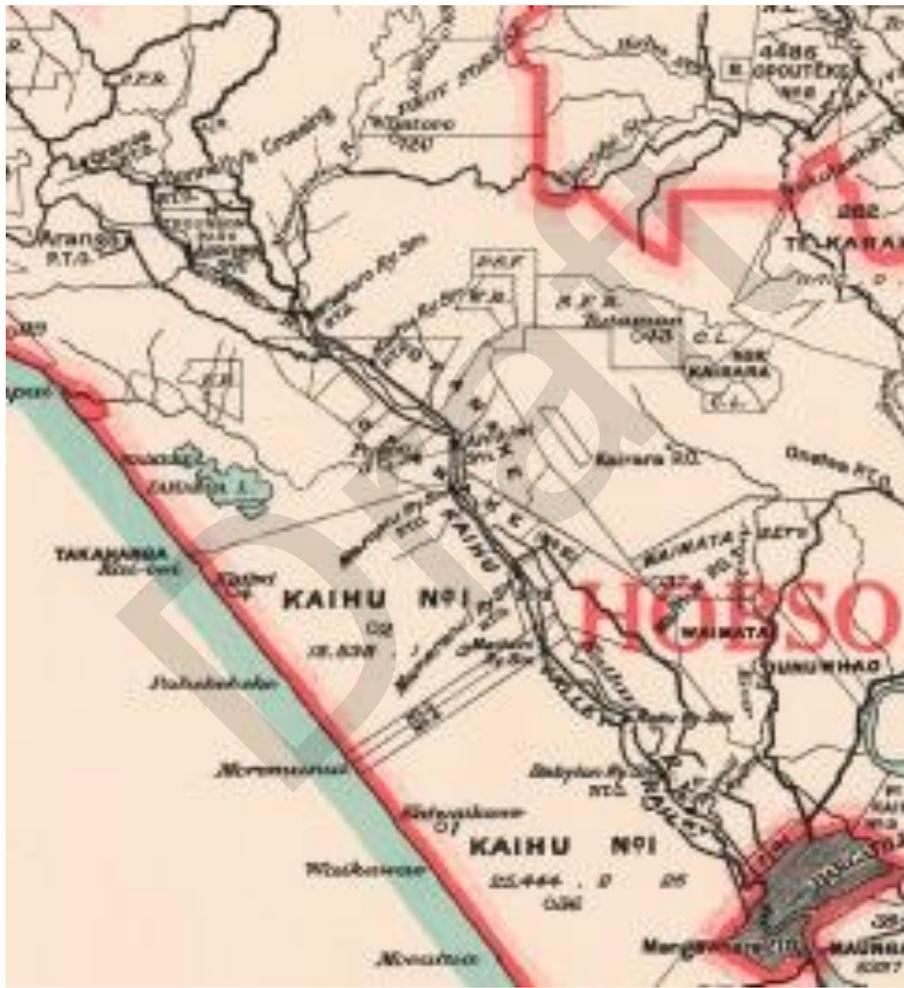


Figure 2: Extract from a 1925 Lands and Survey Department entitled Auckland (Sheet No. 2) that shows the railway line running up the Kaihu River valley. It shows several of the railway stations.

⁷ The name is Donnellys Crossing with no apostrophe (although this is grammatically incorrect). The name is not official as it does not have an official name (New Zealand Gazetteer, LINZ. Retrieved 12 May 2021).

State Highway 12 forms the main modern roadway running from Dargaville north up the Kaihu valley through Waipoua Forest to the Hokianga Harbour. It runs roughly parallel to, and at times besides, the old railway line.

5.2 Landscape

The Kaihu River itself is the dominant natural feature of the relatively level valley landscape on the southern half of the trail (Fig. 3). The predominant land use in the river valley is dairying and other grassland farming. Forestry and farming dominate the foothills on either side of the valley with some areas of scrub and native forest.

The Kaihu River meets the Northern Wairoa River at Dargaville. Several main tributaries of the Kaihu River were crossed the by the KVT including the Waima River, Waingarara Stream, Maungatu River, Waiparataniwha Stream, Te Kawau (Te Kawa) Stream, Te Kapomohi Creek, Taita Stream and Rotu Stream.

To the west of the southern part of the of the Kaihu River valley are a band of rolling consolidated sandstone ridges cut by several deep swampy gullies that separate the valley from Ripiro Beach and the Tasman Sea. The Kai Iwi lakes are a notable feature amongst the western hills.

The northern half of the KVT valley crosses through steeper, more rugged hill country as it rises into the ancient volcanic foothills of Maunganui Bluff and Waipoua (to the west) and the Tutamoe Ranges (to the east). The Kaihu River and its tributary, the Waima River, are deeply cut. The landscape is less open and more remote with an increasing amount of both exotic forest and native vegetation, much of it conservation land. Trounson Kauri Park, a 586 ha mainland island conservation reserve administered by DoC, is located south-east of Donnellys Crossing.

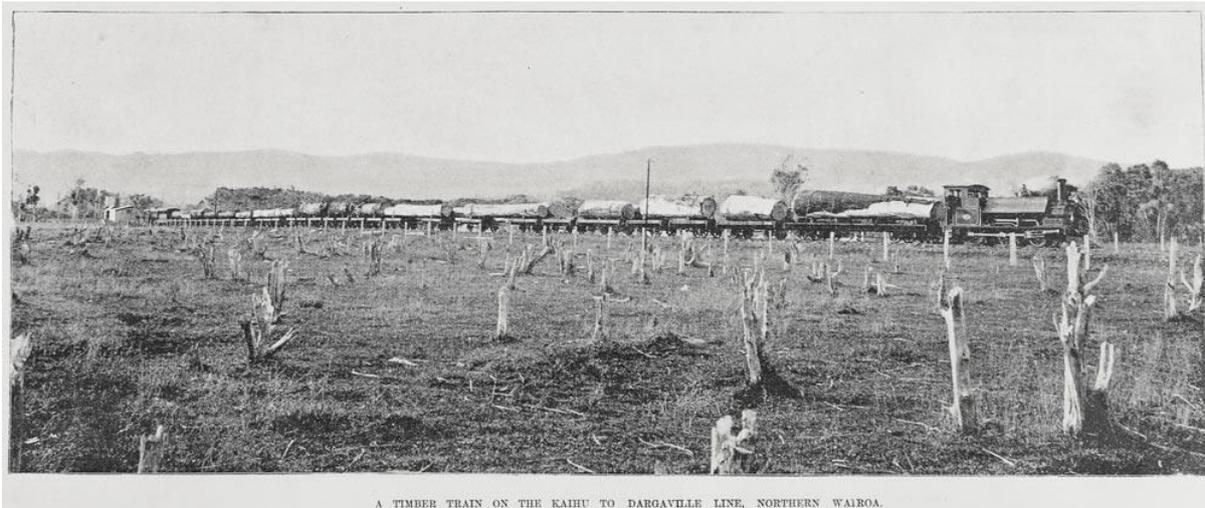


Figure 3: Image showing a timber train on the railway line travelling south to Dargaville crossing level ground (Auckland Weekly News, 9 August 1901 p.5, Auckland Libraries Heritage Collections AWNS-19010809-5-2).

5.3 Soils & Geology

From Dargaville to Kaihu the proposed trail follows the alluvial Kaihu River valley where the flood plain there are deep deposits of mud, sand and gravels (Sutherland et.al. 1980). Beyond Kaihu the land rises and basalt is the predominant rock type. Soil types along the Kaihu River valley and in the Donnellys Crossing valley are predominantly Mangakahia silt loam, clay loam and mottled clay loams that provide fertile agricultural soils. In the past much of the Kaihu River valley was wet land but has now been drained for farming. Some areas are subject to flooding.

5.4 Vegetation history

Much of the Kaihu River valley was wetland with forest dominated by kahikatea throughout the valley. Kauri forest was abundant on the drier land on the river edges and on either side of the valley and became more common further up the valley. Swamp kauri recovered from the lower valley has contributed to scientific research using tree-ring dating and radiocarbon dating (Lorrey & Boswijk 2017).

The wetlands in the lower river valley were dominated by flax which led to the foundation of the flax industry at Flax Mill (modern day Parore) where The Kaihu Flax Company founded constructed a flax processing plant in 1871.

The wetlands and wetland forests in the valley would have been used by Maori for seasonal hunting and resource gathering, as were the kauri forests and other forest types on the surrounding hills.

A newspaper described the settlement in the upper Kaihu river on the cusp of the railways construction.

Maropiu store and native settlement la met with at twelve miles, making the division between Mr. Tinne's land and the native owned block of Opanake, also marking the transition from the tree bush to the heavy bush. To this point the line will be open and trains running by March next. The native clearings and cultivations here occupy both banks of the Kaihu River at intervals. The banks show a good depth of brown, friable loam, resting upon a stratum of boulders and large waterworn shingle. This soil bears an excellent name for fertility; the natural growth upon it is pretty heavy, consisting of large puriri, taraire, kahikatea, and nikau, with large kauri on the spurs and ranges at the back (New Zealand Herald, 27 September 1887 p. 6).

6.0 History and Previous Archaeological Work

6.1 Maori Settlement

The history of the Kaihu River valley and its Maori occupation from early times has been outlined in the Te Roroa Waitangi Tribunal Report (Waitangi Tribunal 1992) and by Garry Hooker (2000).

Hooker's comprehensive report provides a Te Roroa perspective on Kaipara Maori traditional history and tribal relationships, as well as the relationships between Maori and the Crown, and amongst Maori themselves in the Northern Wairoa area. A focus of the known history was the conflict between Te Roroa and Nga Puhi from the later 18th and early 19th centuries, which began a cycle of retribution that continued until the 1830s. Much of the fighting took place in the Kaihu-Opanake-Omamari-Ripiro area. The conflict between Te Roroa and Nga Puhi and Ngati Whatua are relatively well described (e.g. Hooker 2000; Smith 1910: 40-56; Waitangi Tribunal 1992: 10-16).

Human settlement north of Dargaville has long been focused in and along the Kaihu River (and other nearby) valleys with fortified pa concentrated along the foothills and villages located near to the rivers and on the valley edges. Settlement was also clustered along the coast wherever land access to the beach was/is available. Other nearby Maori occupation in the KVR area was focused around Taharoa (Kai Iwi Lakes) and Maunganui Bluff, as well as along some of the secondary stream valleys and wetlands.

From the 1870s the rights to the Kaihu valley and surrounding land and its resources including the timber, flax and kauri gum were leased by Maori to businessmen trading in flax, timber and gum. Initially the land remained in Maori ownership but gradually sections of the land, including that for the railway, and some large portions were sold or otherwise alienated. The railway traversed the Kaihu and Opanake⁸ Maori land blocks.

6.2 European Settlement & Development

The earliest written description of the Kaihu River valley was provided by English trader Joel Polack⁹ who visited Waipoua about 1832. He lived in the Hokianga and Bay of Islands between 1831-1837. In the early 1830s he travelled south from Waipoua with Koruhana and her retinue. She was a niece to Parore, a leader from the area. Following a route through a “jungle” of dense flax they soon arrived at the edge of a great forest:

...whose densely covered soil produced the various trees common to those parts. Some were of the largest magnitude, their branches covered with umbrageous foliage, the soil being impervious to the sun's ray; but little herbage grew on the land, which was rank from the continual moisture of decayed vegetation (Polack 1838: 140).

Polack described the hillsides as covered with useful timber but following the route was hard going with the undergrowth and high straddling tree roots rendering the paths almost impossible to pass. He described emerging onto a large fern covered

⁸ The name Opanake was also spelt Opanaki. Te Roroa historian Garry Hooker considered that Opanake appeared to be the correct spelling (Reed 2002: 232).

⁹ <https://teara.govt.nz/en/biographies/1p18/polack-joel-samuel>

plain where the hills on each side were distant and irregular, but apparently well covered with useful timber. Then he traversed another swamp that was filled with flax until they reached another plain also covered in flax before arriving at the village of “*Tetaita*” (presumably Taita), a village of Parore’s, where there were three large flax-houses, filled with scraped flax of various qualities. Polack wrote that the flax-houses were nearly eighty feet (27 m) in length, and thirty feet (9 m) in breadth, with the lower parts open (rather than walled in).

Resuming their travel they saw masses of kauri gum buried in the earth. Patches of low forestland were observable in various parts of these plains with swamps that he described as abounding in flax. Here the hills were sandstone and the marshes filled with a wiry grass called “*hiwi*”. Arriving at “*Otapanihu*”, three houses were erected quickly for the night. Polack wrote that the place had been formerly a nourishing village and was where the navigable part of the Kaihu River commenced but now, the area was deserted and the former tribes that existed there had been entirely destroyed. From there after a short distance, they soon arrived at the place where canoes lay anchored amid a quantity of reeds alongside the banks of the Kaihu and once aboard and seated the three canoes started in company, and were steered down the river with great rapidity. The river took a devious course and was very narrow. The canoes were much impeded in their progress by the branches and stumps of trees in the water, and that blocked the course of the river, but after a time they cleared the obstructions and the stream expanded to some width. The riverbanks on either side had only tall overhanging flax bushes, and the place was deserted, with not an inhabitant to be seen. Places that had been particularly populous villages were pointed out to him. Polack described how these deserted spots that had been villages left a undefinably unpleasant sensation. After paddling for about five hours past riverbanks covered with dense flax bushes they landed at a deserted village called “*Nagnereri*” and after preparing a meal they set out again. He wrote that they left the long Northern Wairoa River to their right and travelled to the Mangakahia River (Polack 1838: 146-150).

Another early European visitor to the Kaihu River valley in 1842 was the missionary Reverend William Wade who travelled from the Hokianga southwards following the beach as far as Maunganui Bluff and then proceeded to go inland towards the great

kauri forest and the Kaihu River. Wade was greatly impressed by the kauri forest when he reached it. He described how it grew “*en masse*” that was different from further north, where it only grew here and there as part of a more mixed forest. He described the forest as growing in “...*grand masses, claiming sole possession of large portions of country, and enriching the landscape with its lovely green.*” He then described entering the Kaihu River valley, but provides little detail, writing how in the course of their journey they had to cross the Kaihu River six or seven times, sometimes wading knee deep (Wade 1842: 57).

They reached Kaihu village (modern Dargaville) in the evening and were directed Parore to Paora's (Paul's) wheat field nearby. Wade was both surprised and greatly impressed with the state of this wheat field that had just been harvested that day and was been being processed. He described as the land immediately around Kaihu as level and exceedingly rich and well for cultivation, noting the presence of flax and raupo that thrived in the swampy lands (Wade 1842: 60-64)

An early European resident in the North Kaipara was the Reverend James Buller who was a Methodist minister. He lived at Tangiteroria (about half-way between Dargaville and Whangarei) on the banks of the Northern Wairoa River between the years 1838 and 1854 with his family. Te Tirarau was the local Maori leader there. Buller recorded his periodic visits to Kaihu, the settlement at the mouth of the Kaihu River:

Kaihu was the name of a rich valley, just fifteen miles inland, from a point which was thirty miles or more down the river. A tribe of two hundred, or thereabout, lived there under the chief Parore. They had embraced Christianity, and built a church. I visited them periodically. It was then a rough journey, and in winter, when the woods were inundated, I had, in places, to walk breast-high in water. They built me a little cottage, as I always stayed several days with them. It was supplied with the prophet's furniture – "a bed, and a table, and a stool, and a candlestick." A few apple trees were planted within the fence that enclosed it. The wife of my old teacher, Hohepa Tapapa, had charge of it. When I was expected, she would put it in order: a clean layer of fern was provided, boiling water was poured over the ground-floor – this was to destroy the fleas, – and a new mat was laid down (Buller 1878: 65).

Apart from isolated travellers the Northern Wairoa and particularly the Kaihu valley remained relatively isolated from European settlement and influence until after 1870 when Maori first leased (and then later sold) the land. The leases provided out-siders with access to the flax, timber, and kauri gum. By 1870 there thriving towns in other parts of the Kaipara Harbour, including at nearby Aratapu and Te Kopuru, where timber milling and ship building were flourishing industries.

In 1871 the Kaihu Flax Company Limited, acquired a lease to harvest flax from the large Te Roroa owned Kaihu No. 1 block and constructed a flax mill at Flax Mill (modern Parore) in the lower Kaihu River valley (Coates 1975: 10-13; Reed 1956; Tinne 1873). After the mill was destroyed by fire in 1872 the owners started The New Zealand Fibre Company and rebuilt the mill with new machinery (Coates 1975: 128; Daily Southern Cross, 16 November 1872 p.2; 18 November 1872 p.3). The company manufactured flax products, including paper, rope, twine, door mats, and roofing felt (Coates 1975: 33; Reed 1956: 346-7; Tinne 1873).

In 1871 an Auckland based businessman, Mr Joseph M. Dargaville, visited the Northern Wairoa and recognising the business potential in the area leased 1.6 ha (4 acres) near to the Kaihu River mouth from local Maori leader Parore Te Awha¹⁰. The locality was then known as Kaihu¹¹. Here Dargaville opened a store and developed his business trading in timber and kauri gum with Edwin Mitchelson¹² as his local manager. In 1872 Dargaville purchased the Tunatahi land block of 69 hectares (171 acres) from Parore and others and proceeded to build a private town (later named Dargaville) at the junction of the Kaihu and Wairoa Rivers. In 1876 Dargaville sold part of his timber interests to the Union Sash and Door Company. Edwin Mitchelson took over Dargaville's other businesses, founding E. Mitchelson and Company with brothers Richard and John and developed a large trade in timber and kauri gum.

¹⁰ <https://teara.govt.nz/en/biographies/2p8/parore-te-awha>

¹¹ The location and settlement at the confluence of the Kaihu and Wairoa Rivers was originally named Kaihu, but the new town became named Dargaville. The name Kaihu became used as the name for the small settlement previously called Opanake, north of Dargaville

¹²

By 1878 the town become known as Dargaville and had grown from “... *a kauri gum store, and one or two Maori whares...*” to have become a substantial enterprise with numerous houses and cottages, its own public hall able to hold 250 people, a first-class hotel with another under construction, a bank branch, a library, a Masonic Hall, several substantial detached stores and tradesmen’s shops, the large riverside E. Mitchelson and Co. store, a courthouse with a lock-up, a billiard room, a bowling alley and “..*one of the best churches north of Auckland*” (New Zealand Herald, 1st July 1878 p.3; Reed 2002: 112; Ryburn 1999: 58).

6.3 The Kaihu Valley Railway

In 1882 Dargaville¹³ and Mitchelson¹⁴ (by then both Members of Parliament), and seven other businessmen formed the Kaihu Valley Railway Company. The company contracted to build a railway line about 31.4 km (19.5 miles) up the Kaihu valley to be linked with the port on the Wairoa River at Dargaville within 5 years¹⁵.

Construction of the railway was made possible by the Railways and Land Act 1881 which enabled settlers to build and manage railways in New Zealand. As an incentive the Company was to receive 5,872.5 ha (14,501 acres) in land and timber grants.

The first sod on the KVR was turned by Mr Dargaville on 20 March 1883 on a fine day in presence of crowd of 700 residents and settlers from the surrounding districts. A triumphal arch was erected in Portland Street, Dargaville, and the Hobson Garrison Band played. The ceremony commenced with Mr Dargaville addressing the assembled crowd. He stated that the object of the railway was to open the bush country in the Kaihu valley, noting that about twenty miles away was a forest of kauri said to be the finest in the northern portion of the Auckland Province. Dargaville declared that the new railway would make over 100,000 acres of “..*some of the finest land in the colony...*” available for profitable settlement, provide employment for hundreds of workers and utilise immense tracts of kauri forest, with an estimated 300,009,000 feet of kauri within reach of the railway. Future extensions of the rail

¹³ Joseph Dargaville was a Member of Parliament from 1881-1887 (Mogford 1993a).

¹⁴ Edwin Mitchelson was a Member of Parliament from 1881 to 1896, and held a number of cabinet positions between 1887-1891 and served as Acting Premier, and Colonial Treasurer, for 12 months during 1890 when Prime Minister Atkinson was ill (Mogford 1993b).

¹⁵ Kaihu Valley Railway. Contract Entered into between Her Majesty The Queen and The Kaihu Valley Railway Company (Limited) (Appendix to the Journals Of The House Of Representatives, 1882 Session I, D-11).

would reach much more kauri. The men employed in the bushes and on the mill works would be consumers of large quantities of beef, mutton, pork, butter, and other farm product, so that settlers would have an excellent market on the spot. After the ceremony two hundred guests sat down for luncheon in the Raynes' Hotel (Auckland Star 20 March 1883, p. 2; New Zealand Herald, 21 March 1883, p. 6).

In 1887 with the anticipated the arrival of the steel track and 15,000 sleepers on hand the newspaper extract detailed the work necessary for the construction:

The railway, as a railway, should work very well, for the general course of the line is straight, there are no great heights to be overcome, and the curves are neither numerous nor cruel. The governing is one in 58½, and of this there are only a length of twelve chains; there is one over of eight chains radius, one of nine, the majority are of fifteen to forty chains radius, and there are no reverse curves. Where the curves exist the line is level or of very slight inclination, while there are many stretches of level upon which an engine-driver can make time. The formation level is kept eighteen inches above ascertained flood level. Packs of drift timber in the Kaihu River have dammed up flood waters to an unusual height at times, but it will become the duty of the line tenders to remove these, and with them their attendant dangers. Mr. Morton Williams, chief engineer of the line, is confident that all danger from floods is removed by his arrangements: for fourteen or fifteen chains embankments have been raised to guard against the effects of the packs in the river, but of embankments raised to the full height determined on, no one has been submerged. The bridges are stoutly made, considering the weight they are to bear. Where washing of the embankments by flood water is looked for, fascine work will be resorted to in the first instance, and when the rocky gorge is entered, the stone obtained in excavation will be used in making aprons of loose rubble (pierres perdues), or "rip-rap," as our American cousins call it, in replacement of the fascines. Where the banks are Bandy the rubble work will need a further backing of small shingle to prevent the washing through of the sand. Barrow-pits have been largely resorted to to find the stuff for the embankments, as the cuttings actually needed are both shallow and short. The line will be laid with flat-footed, single-head rails of Bessemer steel, 53lbs to the yard, fastened down with fang spikes. The rail joints will be simultaneous, made upon the sleeper, flanged fishplates being used. The gauge is 3ft 6in. The vessel with the first instalment of the iron is due at Dargaville the middle of this month

(September), and the laying of the rails will commence on her arrival. Fifteen thousand sleepers are already on the ground. The line will be ballasted with river shingle, taken from an old bed of the Kaihu, and with the advent of the four-wheeled "pony" engines, ballast trains will be run. The standard type of engine will be a sis-coupled, twenty-ton engine of short wheel base, and the remainder of the rolling stock will be of the kind usual on our railways. The cost of the whole line, equipment included, will be kept much within the primary estimate, and by this time next year, if not before, the line will be regularly open for traffic throughout. (New Zealand Herald, 27 September 1887 p.6; Appendix 7).

The first section of the railway ran across comparatively level river flats and required the construction of an earth embankment to raise the rail track above the wetlands. These embankments are perhaps the most conspicuous remains of the railway visible today. By 1888 26.6 km (16.5 miles) of track had been laid from Dargaville to a point south of Opanake¹⁶ and just to the north of Maropiu.

However, difficulties with finances, and disputes over business arrangements and land ownership led to delays in the work and the company were mortgaged to the Government (Hansen & Neil 1992: 55; Ryburn 1999: 84-85). With finance available railway contractor Daniel Fallon commenced working in October 1888 to extend the unopened line a further 4.02 km (2.5 miles) to Opanake (modern Kaihu). He employed about 40 men to construct the line, which included forming and laying the track as well as the erection of bridges. Fallon was also readying an additional 1.6 km (1 mile) of track for metalling and laying that took the railway past Opanake to the Kaihu Booms and edge of the Opanake forest.

At about the same time Fallon was also preparing to clear another 4.4 km (2.75 miles) of railway track through dense kauri bush further up the Kaihu River valley to Whatoro where it meets the Waima River (although this section was not completed for use until 1914) (Fordyce 1998:63, 76).

¹⁶ Opanake or Opanaki was the original name of the place now called Kaihu. However, the locality originally reached by the railway and called the Opanake Station was short of the actual place then called Opanake (modern Kaihu). The name was changed to Kaihu in 1896 (Reed 2002: 232).

A newspaper described the railway and Fallon's preparation to advance the line:

This Railway, belonging to the Kaihu Valley Railway Company, is now completed to the extent of sixteen and a-half miles, reaching a short distance beyond Maropiu... At Dargaville, a picturesque little station has been erected, with the usual offices; an engine-house capable of holding the two engines at present on the line, has been provided, with coaling and water appliances adjacent. A substantial wharf, with deepwater frontage to the Northern Wairoa River, has been built, with a timber slip for discharging logs from the trucks in close proximity. As far as at present constructed, the line has presented very few engineering difficulties, having comparatively level country to traverse. It, however, reflects credit on those concerned in its construction, travelling, even at a high speed, being remarkably smooth and easy. A further distance of little short of a mile has been prepared ready for metalling, which brings the line to the kauri bush in the Opanika [sic] district, and where Mr. Daniel Fallon has commenced operations to carry the railway another two and three-quarter miles through this dense bush and broken country. The work at sight seems a stupendous one, but is in able hands, and, during the brief time at his command, Mr. Daniel Fallon has shown that he has resources quite equal to the occasion. The survey pegs mark the line to go through numerous spurs of hills, over valleys necessitating deep cuttings and heavy embankments, and about five substantial bridges... Mr. Fallon has first felled the bush on the line of railway already nearly all the distance. He has sawpits at work cutting the kauri into suitable sizes for culverts and bridges, and also for the construction of - several of which are now ready and in use. He has, in addition to the sawpits, a blacksmith's and a carpenter's shop in full swing, two large stores erected in the heart of the bush, camp erections occupied by about a hundred people, and stabling for over twenty horses engaged. He has already opened out about twenty-four faces to half that number of spurs, and has gangs of men with either waggons [sic.], drays, or wheelbarrows, in full work at each of these points of attack. The track has also had to be formed through the bush to get the horses and drays to distant workings; but, judging from what has already been accomplished, it will not be the contractor's fault if the progress of the work is at all delayed. The line in this section goes through the most romantic scenery imaginable; and, when the railway is opened for passenger traffic, it will be well worthy of a visit before the beauties of the forest are decimated by the bushman's axe. There are thousands of magnificent kauri trees in all stages of growth,

and so close in many instances as to exclude the sun's rays beneath their foliage. One monarch of the forest measures no less than 38 feet in circumference and gives every indication of being a mottled kauri. Another giant of scarcely less size rears its stately trunk to a great height, putting all other trees in the shade (New Zealand Herald, 21 December 1888 p. 6).

The KVR rail service started running to Opanake Station on 16th January 1889 (Daily Telegraph 17 January 1889 p. 3) (Fig. 4). An earlier service had run on 10 January 1889 when a special train was provided for the Hon. G. F. Richardson, Minister of Lands, who was travelling from the Hokianga via Kawerua to Dargaville (New Zealand Herald 9, 10 January 1889 p.6).

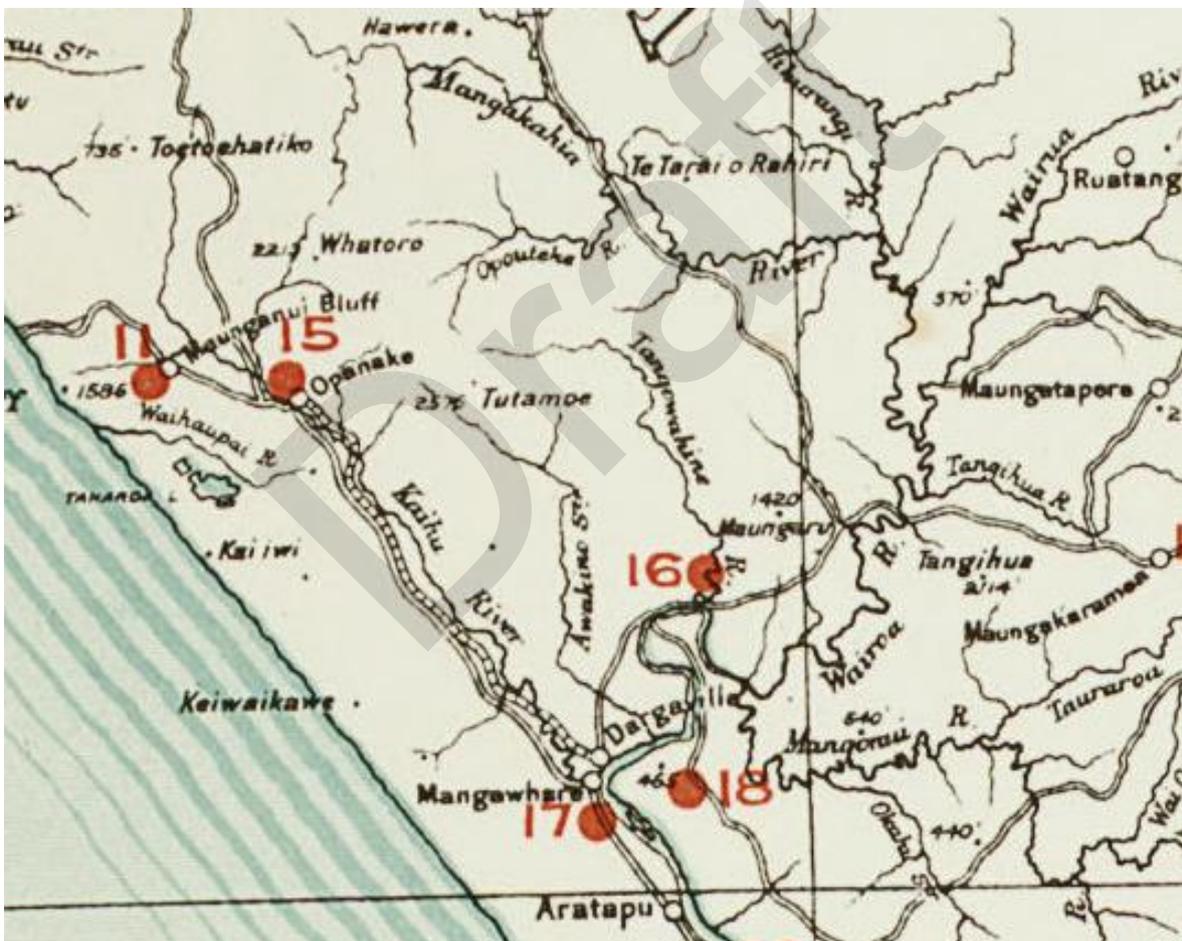


Figure 4: Extract from a Lands and Survey based map entitled “*The Timber Industry of New Zealand. Number and Position of Mills, 1906-1907*”. The map shows the Kaihu Valley Railway extending from Dargaville to Opanake, but no other stations. It also shows the locations of Trounson’s sawmill at the Kaihu Booms and another mill near to the mouth of the Kaihu River at Mangawhare and other mills.

Other visitors also took the opportunity to travel on the new rail line. An “...*excursion of gentlemen*” to the “*Opanake Bush*” one hour from Dargaville on a special KVR train was advertised for Saturday 2nd February 1889. After arriving at Opanake the excursion was to continue with a walk of 0.8 km (0.5 mile) to the kauri bush on the track that was not yet metalled. The paper reported that here, Mr. Fallon was penetrating a further distance of 4.8 km (3 miles) into the virgin forest. It continued “*The scenery here is weird and romantic to a degree, but now made easily accessible by means of the iron horse*” (New Zealand Herald 26 January 1889 p. 4).

In April 1889 a report stated that the contractor was making good progress on the last KVR extension using close on 90 picked workmen for the work (New Zealand Herald and Daily Southern Cross 16 April 1889 p.4). However, the railway company’s financial difficulties continued and in May 1890 the Government took possession of the railway. Mr Fallon was advised to cease operations for the present (New Zealand Herald 1 May 1889 p.5). By this time, the earthworks for the extension to Whatoro had been largely completed.

In 1892 the dairy factory was opened in Dargaville, and the new line began to be used to transport cream from the developing dairy farming industry. The primary purpose of the original railway line was seen as the extraction of kauri logs from the forests, but it was also recognised it would then provide support for the conversion of cleared land into farms.

Fallon was not paid for his work and a deputation of businessmen lobbied Prime Minister Seddon to pay Fallon £8000 “*for work done on the Kaihu Valley railway*” (New Zealand Herald 8 June 1892 p.6).

After the KVR failed to sell at auction the Government acquired the railway (Hansen & Neil 1992: 55). The line was then operated by the Public Works Department (PWD) until the beginning of 1893 when it was transferred to the Railways Department (NZR).

— T I M E T A B L E —
N. Z. R.
KAIHU SECTION,

ON AND AFTER APRIL 1st, 1893.
A—Runs on Fridays and Saturdays.
B—Runs on Tuesdays only.
C—Runs on Saturdays only.

An asterick * opposite a station denotes that Trains do not stop unless required to pick up or set down passengers. Notice should be given to the Guard at the previous stopping station by any passenger wishing to alight at these stations.
FLAG STATIONS — The names of Flag Stations are printed in Italics.

This time table is liable to be suspended on holidays and special occasions.

BY ORDER

Distance from Dargaville.		NORTH.				
M.	Ch.		A	B	C	
			a.m.	p.m.	p.m.	
		Dargaville dep.	8.15	1.30	3.30	
3	08	<i>Flaxmill</i> ..	*	*	*	
4	54	<i>Babylon</i> ..	8.40	1.55	3.55	
6	35	<i>Rotu...</i> ..	*	*	*	
8	59	<i>Maitahi</i> ..	*	*	*	
9	55	<i>Taita</i> ..	*	*	*	
11	27	<i>Dairy Flat</i> ..	*	*	*	
12	56	<i>Maropiu</i> ..	9.20	2.35	4.35	
14	22	<i>Ahikiwi</i> ..	*	*	*	
16	25	<i>Opanake</i> arr.	9.40	2.55	4.55	

Distance from Opanake		SOUTH				
M.	Ch.		A	B	C	
			a.m.	p.m.	p.m.	
		<i>Opanake</i> dep.	10.0	3.15	6.15	
2	03	<i>Ahikiwi</i> ..	*	*	*	
3	49	<i>Maropiu</i> ..	10.20	3.35	6.35	
4	78	<i>Dairy Flat</i> ..	*	*	*	
6	50	<i>Taita</i> ...	*	*	*	
7	46	<i>Maitahi</i> ...	*	*	*	
9	70	<i>Rotu</i> ..	*	*	*	
11	51	<i>Babylon</i> ...	11.0	4.15	6.15	
13	17	<i>Flaxmill</i> ...	*	*	*	
16	25	Dargaville arr.	11.25	4.40	6.40	

Figure 5: A KVR timetable from 1893. It names the stations on the line, the distances from Dargaville and Donnellys Crossing and the time the train stops on different days. All of the stations except Dargaville are shown as Flag Stations¹⁷ (Wairoa Bell, 7 July 1893, p.9).

¹⁷ A Flag Station is a railroad station where trains stop only when a flag or other signal is displayed or when passengers are to be discharged. Maropiu, Rotu and Ahikiwi were open for passengers and parcels only.

under the Railways Authorisation and Management Act 1891 and was operated as an ordinary Government owned railway (Appendices to the Journal of the House of Representatives (AJHR), 1893, D-1 p. xi).

An NZR timetable (Fig. 5) provided details of the stations that were operating at that time and their distances from Dargaville. A new station and goods shed at Opanake were reported as completed in September 1893, replacing a locally owned shed that had been used until then (New Zealand Herald, 12 September 1893 p.6).

The Kaihu Valley Railway Extension Act 1895 authorised the construction of an extension of the railway from the Opanake to the Waima (AJHR, 1895, D-1, p. viii).

The extension of the railway the short distance from Opanake Station to (modern) Kaihu was completed on 11 November 1895 (Hansen & Neil 1992: 56). By December 1896 a new station and post office were nearly completed and a number of business premises had been built (Auckland Star, 16 December 1896 p. 3).

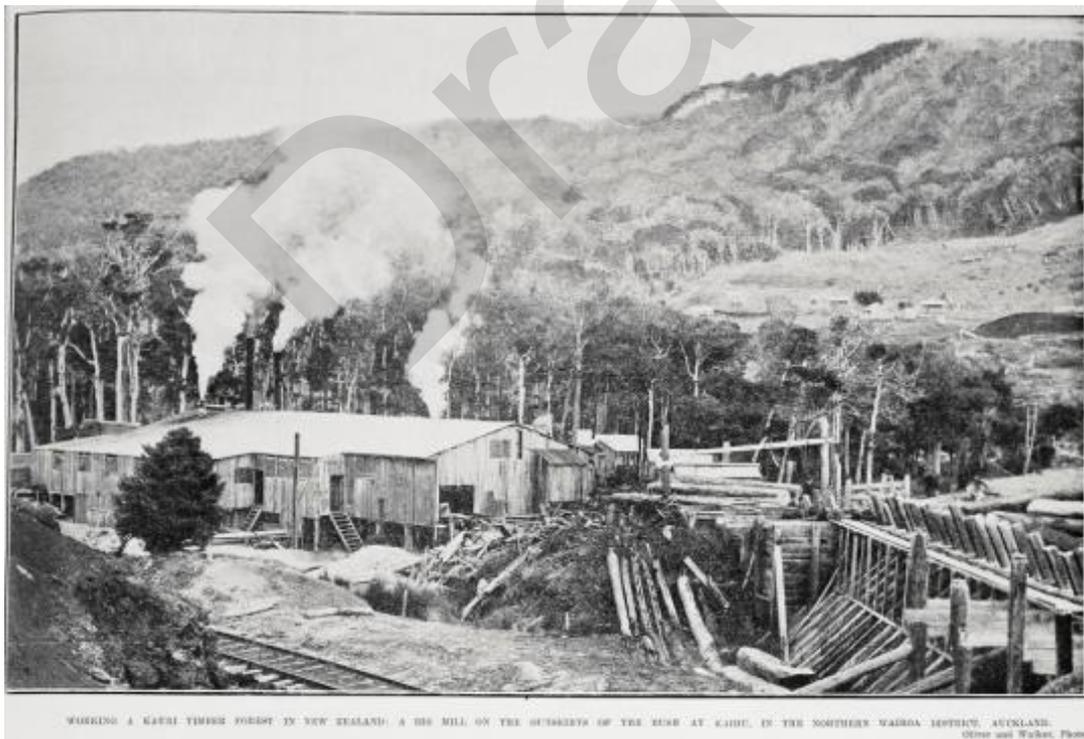


Figure 6: Trounson’s sawmill at the Kaihu Booms in 1912. Note the KVR railway line. On the right of the image is a dam with logs floating in the water behind. This is where the boom, a floating barrier, that kept the logs contained (Auckland Weekly News, 1 September 1912 p.11, Auckland Libraries Heritage Collections AWNS-19100901-11-1).

The next short extension of the line, 1.1 km (55 chains) long, from the Opanake (ie Kaihu) to the booms on the Kaihu River was completed and handed over to the Railway Department for traffic on 21 October 1896 (AJHR, 1897, D-1, p. iii) (Fig. 7). Here James Trounson who owned large tracts of land and timber to the north of Opanake/Kaihu had constructed a large sawmill beside the Kaihu River. Timber booms (in the river) and skids also had been constructed ready for the transfer of logs from the river to the railway (AJHR, 1896, D-1, p. viii) (Fig. 6).

A 1905 newspaper provided an informative description of the railway line from Dargaville and its importance in the development of the Kaihu River valley and surrounding area:

Dargaville, in addition to being a shipping centre, has also got a railway, and that is an important item... That line, however, is the third best paying line in the colony, and Dargaville has a right to be proud of it. Passenger trains run on Tuesdays, Fridays, and Saturdays, but there is a frequent log service, that is, the carriage of logs from the bush up the line to the river at Dargaville, where the timber is shot off and floated down to the sawmills. Leaving Dargaville the train runs up the Kaihu Valley for a few miles, past rich alluvial flats, still covered with native growth. At the flaxmill (four miles) the Kaihu Creek is crossed, and there a number of old age pensioners are gaining a small livelihood at gumdigging. The flaxmill employs some 30 men, and this trade is, of course, catered for by the railway. A mile past the flaxmill is Babylon¹⁸, which is not much like the other Babylon, but it is a gum buying centre. A few miles further up the road leads into a much better class of country, especially as the train approaches Dairy Flat, and there the beautiful rich pastures and the well conditioned cattle give ample demonstration of the value of the soil when cultivated. The fact of the matter is the soil anywhere on the flats in the Wairoa district is all right when cultivated and drained, and in many parts it is exceptionally rich. Passing Rotu, Maitahi, and Taita, one comes to Maropiu, 13 miles from Dargaville, where the land is all of first-class quality, and there are some very pretty scenic glimpses along the line at this stage. A good hotel has been established in the district, and one desirous of spending a pleasant day or

¹⁸ Babylon was a main trading centre and gum field where the many nationalities of gum diggers lead to a “confusion of tongues” as amongst those in the Old Testament who erected the Tower of Babel (Coates 1975: 25; Fordyce 1998: ix, Reed 2002: 32).

two could do worse than visit Maropiu. A mile further is the Ahikiwi log-siding, from whence kauri logs are daily transported by train to the booms at Dargaville. Just past here the Kaihu Creek is again crossed, and it is noticeable that the bed of the stream is pebbly, and a pleasing contrast to the swamps lower down... Between Ahikiwi and Kaihu, a distance of three miles, the line ascends 83 ft, and when it reaches Kaihu it is 159 ft above sea level, and 150 ft above Dargaville. Kaihu is a fairly busy township, with several stores, churches, etc., and it has about it something curiously reminiscent of some of the settlements in the backwoods of America. On the right side the hills have been denuded of forest, and look very, bare, but on the western side the hills rise up several hundreds of feet, and present a fine picture of North Auckland forest. On the summits and slopes some magnificent specimens of kauri can be observed, but the bush is now being worked by Messrs. Harris and McGregor. A mile past this is the terminus of the railway, and there is situated Mr. J. Trounson's sawmill. The creek is boomed at this point, and hundreds of giant logs may be seen piled up awaiting their turn to be converted into boards and blocks, etc. On two different occasions the flood-waters of the Kaihu have washed away the banks just above, and have torn down through the mill yard, carrying with them hundreds of logs, and completely deviating the course of the stream... While the timber industry is the main factor at present in the revenue of this railway, the branch will yet be a much more important line, for the country in agricultural and pastoral pursuits opens up a great field of possibility (New Zealand Herald, 26 October 1905 p. 6).

The extension of the railway further north was delayed in part because of the outstanding claim by contractor Fallon over the work he had carried out in 1889-1890 on the earthworks for the railway to Whatoro. The claim eventually was settled with Fallon being paid (AJHR, 1910, D-1, p. ii).

The work to extend the line from the Booms was re-started in 1908 but it proceeded slowly (Fig. 7). By 1912 the extension was nearly completed except for four concrete culverts and four bridges (Hansen & Neil 1992: 56). The new extension to the Tarawhati (Waima) Station was 3.92km (2 miles 35 chains) long and opened to traffic on 1st June 1914 (AJHR, 1914, D-1, p. iv) (Fig. 7). There were two flag stations on the extension: Whatoro had a shelter shed, a workers' hut, a ramped passenger platform, telephone and a loop siding big enough for 14 wagons. The Tarawhati

Station had a water service for the train, telephone and a loop siding for 28 wagons ([Kaihu River Valley History Website](#)). The ballast used on the track was a fine sand taken from a ballast pit at Maropiu to which a new siding had been constructed. The extended line reached two miles into Hokianga County and connected with the Taheke Road at the Waima Bridge, providing an easy day's journey by horse or vehicle to Kawakawa.

The final section of the line to Donnellys Crossing, its proposed terminus, was authorised in 1913 and work started in November 1914 but construction of the line was brought to a halt in 1915 by World War I. The construction work to Donnellys Crossing resumed in January 1919 and a new goods service opened as far as Aranga by September 1920. The line was briefly considered to be one of the most profitable in New Zealand in the early part of the 20th century with the quantity of logs carried.

A goods service to Donnellys Crossing started in 1921, initially utilising three temporary bridges, and the line was finally opened to passengers on 1 April 1923. The railhead at Donnellys Crossing developed into a small community with a station, several stores, a hall, sawmill and a number of houses. ([AJHR](#), 1913, D-1, p. iii; [AJHR](#), 1915, D-1, p. iii; [AJHR](#), 1916 D-1, p. iii; [AJHR](#), 1919 D-1, p. 20; [AJHR](#), 1923 D-1, p. 31).

By the time the railway reached Donnellys Crossing the kauri logging industry and the railway had both begun to diminish. The railway continued to operate until the 1950's by which time private car ownership had increased and the roads in Northland were improving. By then the line was running at a significant loss and many of the ageing bridges also required replacing. A Royal Commission in 1954 recommended closure of the railway. The line was closed on 19th July 1959, although freight continued to and from Kaihu for a few months. The line had operated for 76 years of which 38 years were spent in its construction.

Demolition of the line began in 1960. Much of the rail iron went to the Portland Cement Company at Whangarei along with the points and fishplates (plates used to join the track). The ballast from the line was sold to the Ministry of Works, who also took some of the rail track (Hansen & Neil 1992: 57). The remaining track went as

scrap with Waste Metals of Papakurua winning the tender for the scrap metal. The buildings including stations, houses and shed were sold with most eventually being removed or burnt down. None of the buildings now remain *in situ*.

Originally, the Kaihu Valley Railway was built to provide access to and transport for the kauri timber along the Kaihu River valley, and this initially provided the main traffic. Early in the 20th century the Kaihu railway line was among the most profitable in New Zealand. Other valuable freight was kauri gum and flax. As well the railway carrying other goods and provided transport to Maori, settlers, gum diggers, loggers, travellers and others. Eventually farming provided most of the freight with cream from the Kaihu valley farm being freighted to the dairy factory in Dargaville.

The railway up the Kaihu valley had several names during the time it was in use that reflected the ownership and operating status. The first name of the isolated railway was the Kaihu Valley Railway. It then became known as the Kaihu Branch. In 1940 Dargaville was linked to the North Auckland rail network and the isolated Dargaville to Donnellys Crossing track became a branch line of the national railway. However, the Dargaville Branch was not officially opened as a connection to the North Auckland Line until 1943 as a new Dargaville railway station was required. The line then became known as the Donnellys Crossing Branch (Hansen & Neil 1992 55).

Detail of the locomotives and the rolling stock used on the KVR can be found in Hansen & Neil (1992: 59-60).

The name of the line is often given as the Donnelly's Crossing Section or Branch. Although grammatically accurate, this is incorrect as the locality's name is officially recognised as Donnellys Crossing with no apostrophe.

6 4 Previous Archaeological Work

The distribution of archaeological sites recorded with the NZAA Site Recording Scheme in the Northern Wairoa area, between Dargaville and towards the Hokianga Harbour (Fig. 8). This includes all recorded sites relating to both Maori and European settlement. The figure shows that archaeological recording has been particularly concentrated along the coast, in Mamaranui and Rotu Forests, at Kai Iwi

Lakes, Maunganui Bluff and Waipoua Forest. All previous surveys and recorded sites are well removed from the KVT. A total of four recorded archaeological sites are located within 1 km of the KVT, Po7/92 (Table 1, Fig. 8). The archaeological sites nearest to the KVR are three pa on the edge of the Kaihu River valley and an historic track that beside SH12. The track leading to the Omamari gum field and the Ripiro beach, would have been contemporary. The pa probably pre-date European arrival.

Table 1: NZAA recorded archaeological sites within 1 km of the Kaihu Valley Railway

Site Type	Site Number	Easting	Northing
Pa	Po7/86	1666523	6035465
Track	Po7/85	1666523	6035256
Pa	Po7/84	1667190	6034480
Pa	Po7/83	1667575	6034280

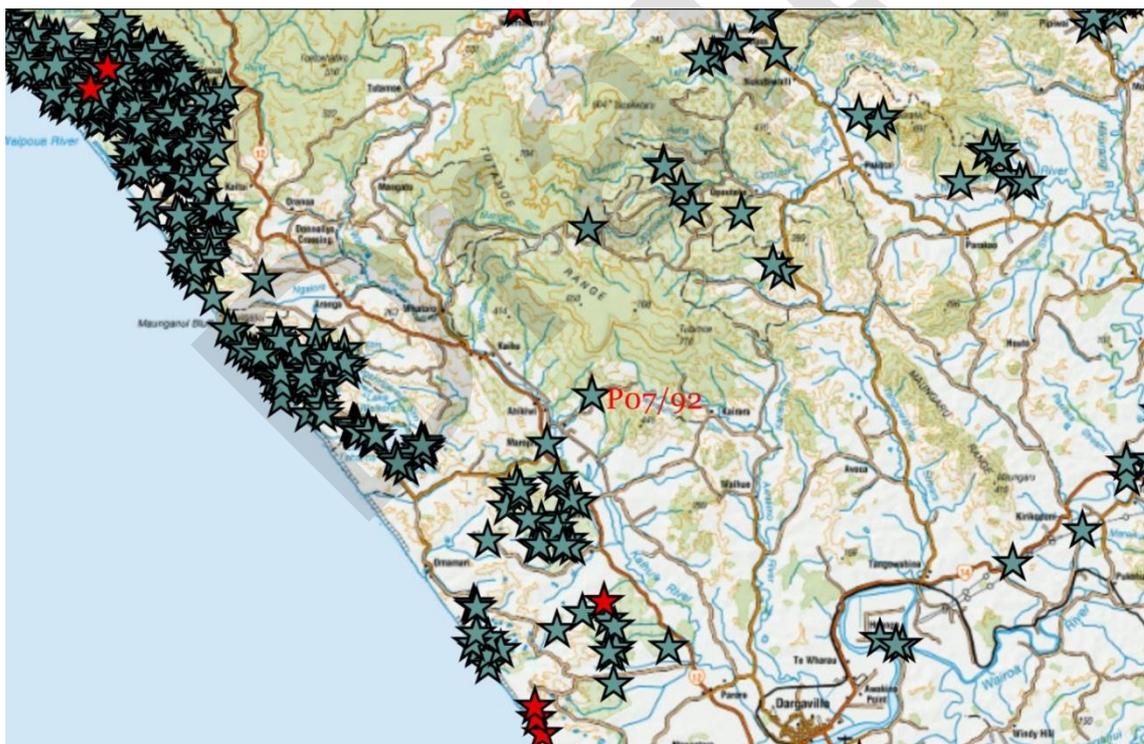


Figure 8: Map showing the distribution of NZAA recorded archaeological sites in the wider region of Po7/92, the Kaihu Valley Railway. The red numbered blue star marks the approximate centre of the railway line that extends from Dargaville to Donnellys Crossing. Other nearby sites to the west are pa adjoining SH12, and gum digging sites in Mamaranui and Rotu Forests. Sites of gum digging and earlier Maori origin are found around the Kai Iwi Lakes. Large concentrations of sites of Maori origin are recorded at Maunganui Bluff and in Waipoua Forest. (Sourced from ArchSite June 2021).

The sites in Mamaranui and Rotu Forests are related to historic gum digging, a major historic activity in the district. They include gum holes from digging for gum, the camps where the diggers lived when working the gum fields and horse and cart tracks.

Numerous archaeological sites are recorded around Kai Iwi Lakes. The sites there are related to early and historic Maori occupation and include a pa and middens. Most relate to historic gum digging.

The sites at Maunganui Bluff and Waipoua are mostly of early Maori origin and include pa, and extensive sites associated with gardening, including storage pits and gardens with stone heaps and lines. There are also some sites of gum digging origin.

All previous archaeological surveys and recorded sites are well removed from the proposed KVT. The absence of previously recorded archaeological sites in the Kaihu valley likely reflects an absence of archaeological survey and site recording rather than an actual absence of sites.

The only previous archaeological survey or assessment that included part of the KVR by archaeologists prior to the current work was a report on the Donnellys Crossing Railway Station by DoC in 1999 (Maingay 1999). The brief assessment was undertaken to assess the condition of the building that at that time was believed to be on land administered by the Department of Conservation. Subsequently it was established that it is the property of the Kaipara District Council. The report included a drawn scale plan and photographs of the station. The report stated that the building was very dilapidated and that some of the foundations had sunk unevenly and there was a marked structural sag. Floor joists have rotted away and large areas of the flooring had decayed or completely disintegrated and parts of the timber ceiling had been removed. Outside it was noted that sheets of rusting corrugated iron had lifted or disappeared from the roof of the platform shelter and that the woodwork in places was completely devoid of paint. In summary that report stated that the railway station was in total disrepair and beyond remedial restorative measures and a safety hazard. It concluded that discussion with local residents was recommended but that demolition was deemed the most likely solution (Maingay

1999). The report included a short history of the railway and had a copy of the section from Hansen and Neil 1992 book on the KVR.

7.0 Results

The archaeological assessment of the KVT has resulted in one archaeological site, the KVR, been recorded with NZAA as archaeological site P07/92 (Fig. 8). The pre-1900 section of the railway line meets the definition of an archaeological site under the HNZPT Act 2014, but the recorded site includes the whole of the c. 42 km rail line. The site record for P07/92 is attached as Appendix 6 and working draft maps of field locations of features and sites is include as Appendix 9.

The railway from Dargaville to the Kaihu Booms, just over 1 km past Kaihu, was opened in 1896. In addition, the earthworks to construct the rail formation from the Booms to Whatoro also were undertaken before 1900 and this section of the track can also be considered to be archaeological as defined by the HNZPT Act. Building of the Whatoro Section was not completed at the time and it was not completed until after World War I. The new section was extended as far as Tarawhati (Fig. 7). The extension of the line to Donnellys Crossing was completed in 1923.

During the field work a large number of archaeological features associated with the railway were recorded. Draft working maps showing the locations of these are shown in figures in Appendix 9. Digital photographs were taken of all recorded features and structures and other places of interest during the field survey. These results should be considered to be preliminary as a more comprehensive list would result with more field time and research.

The results are grouped below under the most common categories of structures or features – as follows 1/ Rail formation 2/ Bridges 3/ Stations 4/ Wharves 5/ Booms 6/ Stockyards 7/ Water towers 8/ Culverts 9/ Other buildings 10/Quarries 11/Mills and other industries 12/Other sites.

7.1 Railway Formation.

The railway formation was built between 1887 to 1923. The sleepers and the rail arrived in 1887. Construction of the formation started earlier. An 1887 newspaper

article detailed the valley landscape, the construction work necessary, and the difficulties it presented to the building of the railway is included as Appendix 7. The formation built for the railway is readily identifiable over virtually its entire length from just beyond the Dargaville urban area to Donnellys Crossing (Figs. 10-16). The raised earth embankment that runs across the grassed flatlands is particularly conspicuous, but the formation is also intact and readily followed in the hilly and forested country north of Kaihu where more cutting has occurred (Fig. 14).

Since the railway was closed in 1959 the formation has continued to be used for a variety of tasks (Figs 10-16). This use has resulted in areas of limited damage but has also helped to ensure the maintenance and survival of the formation. The disused rail formation has also been used as a vehicle track and for various farming purposes including as stock races over much of its length (Figs. 10, 12-16). Other uses have also occurred. The water supply pipeline that runs from near the Waiparataniwha Stream (near to Waikaraka Marae) has probably caused the most damage (Fig. 13). The pipeline has been recently undergoing renewal. Manholes, water sources and signage are the main evidence of the pipeline that are visible. The railway from the Waiparataniwha Stream to Donnelly Crossings has better over-all preservation as the Dargaville town supply pipeline does not extend into this area.

Several sections of the railway have been used as the route for rural roads (Fig. 16) as well as for SH 12 (Fig. 11). SH 12 follows the formation briefly just north of Rotu Station on a 75km/h recommended bend to the following bend heading north on a short straight until where there was once a railway crossing. It is now a driveway.

Flooding of the Kaihu River after heavy rain has also caused problems with the KVR since the historical times when the railway was built.

The railway formation from north of Waikaraka Marae to Donnelly Crossings has better over-all preservation partly because the Dargaville town supply pipeline does not extend into this area(Figs. 14-15).



Figure 9: The KVR heading north, looking over Rotu, with Babylon Station to the south showing how the embankment stands out on the landscape. The image was taken in 1973. (Image from the Internationalsteam.co.uk website) ¹⁹.



Figure 10: Looking south near to Rotu, just south of where SH12 now runs on the railway formation showing a straight section of the raised embankment running through farmland.

¹⁹ [More Travels in the Far North of New Zealand](http://Internationalsteam.co.uk), October 1973 (internationalsteam.co.uk)



Figure 11: Looking north along State Highway 12 where the highway runs on the firm foundation of the former railway. The old road ran left of the railway and is not readily visible. In the distance on the right at the end of the bend, there was a railway crossing.



Figure 12: A section where the railway was benched to cut across raised ground north of the former Rotu Station. Looking south. SH 12 is out of view to the right.



Figure 13: Looking north along the raised embankment near to Rotu. Note the bridge or large culvert the track crosses. The Dargaville water supply pipeline is visible.



Figure 14: A cutting on the line south of Whatoro in an area of pine forest, looking north.



Figure 15: Looking north. Whatoro Station was once located around the bend to the left with the shelter shed, on the right further on. Opposite the bend to the left taro is growing in a streamlet. Quarrying rock has left old rectangular holes on both sides, but they are out of sight and overgrown.

7.2 Bridges

Over 30 rail bridges were built on the KVR. Some of these were large and impressive structures, built initially of wood. The sites and remains of 28 bridges were identified during the assessment (Figs. 16-21). The individual histories of the bridges have not been pursued, nor has co-relating the bridge plans to the archaeological remains been attempted. The large number of bridges on the railway line resulted from the meandering nature of the Kaihu River and its numerous tributaries. The bridges underwent a continuous process of repair and reconstruction while they were in use (Fig. 17). Flooding of the river and the logs and debris that were carried by the water provided a serious problem with bridge maintenance.

The main archaeological features of the bridges that survive are the bridgeheads, that are the locations on the riverbanks on which the bridge structure was placed and secured, as well as piles in the rivers and streams (Figs.18-19). Although none of the original rail bridges have survived intact, parts of two remain in use as road bridges, with new surfaces and structural elements (Fig.16).

The start of the railway at Dargaville and the first bridge over the Kaihu River was described in an 1887 newspaper report:

Starting from the substantial wharf at Dargaville, and passing through the heart of that township, the line of the railway follows the general course of the Kaihu River, which it crosses, at two miles sixty-two chains, by a strongly built wooden truss bridge near the flaxmill. The shore piers of the bridge and the adjacent ends of the embankments are protected against floods by terraced tiers of strongly made tea-tree stake fascines well pinned down. The river fiat near Dargaville is but little below formation level.

Though moist, it can hardly be called swampy for the first mile, but on passing the native village of chief Parore, and cutting through a high spur, a stretch of kahikatea swamp is met with, through which the line is carried upon a high embankment, not yet completed, and for which much of the earth has been obtained by side-casting. Owing to the wet state of the ground, and the gnarled and intertwined roots of the trees, coiled together like the snake folds of the laocoon, the task of making the line has been most unpleasant for the workmen. Shortly before reaching the bridge a flood opening of a hundred feet has been left. As is common in the Wairoa district, the land at the water's edge is rather higher than farther back from the river. This is probably owing to the accumulation of drift wood round the stems of the trees near the stream first, and the deposit of silt among the drift, the whole forming a low, irregular dyke, bound together by the subsequent growth of herbage. Hence, when floods have come and gone again, the water is retained in lagoons and pools back from the river. To prevent this the flood opening has been made, and a channel provided for the escape of the water to the river lower down at a point where the Kaihu, after making a long loop, curves back. The course of the flood water is, in fact, a short cut across the bend ; but no danger is thought to exist that this will develop into a cut-off, and form a new and direct channel for the river (New Zealand Herald, 27 September 1887 p.6).

The manuka fascines placed along the riverbank to prevent erosion are likely to still be present and fascines may have been used and survive at other locations on the railway.

The squared wooden architecture of a bridge can be seen Figure 17. Figure 20 shows a plan for the Whatoro bridge and Figure 21 a view of same the bridge before it was in use. Figures 18 and 19 show the remains of the Ahikiwi Bridge which was the last intact rail bridge spanning the Kaihu River. It was swept away by flooding during Cyclone Bola in 1987.



Figure 16: Looking south towards Mamaranui along the old route of the KVR, now Mamaranui Road. The bridge was originally the railway bridge. In the mid-distance, where the road bends to the right, the railway went straight ahead. The old Mamaranui Road ran parallel to the railway on the right and had its own bridge.



Figure 17: One of the most intact bridges surviving is between Dargaville and Parore just west of the Kaihu River. The wooden piles and bearers may be original while the iron girder is a replacement for an earlier surface. There is a farm track around the bridge to left and the bridge is no longer in use.



Figure 18: An image of the northern bridgehead of the Ahikiwi Bridge taken from the south side of the Kaihu River.



Figure 19: The southern bridgehead of the Ahikiwi Bridge. Squared timber from the bridge remains on site. Animals have been burrowing into the clay base. The bridge was swept away by cyclone Bola in 1987.

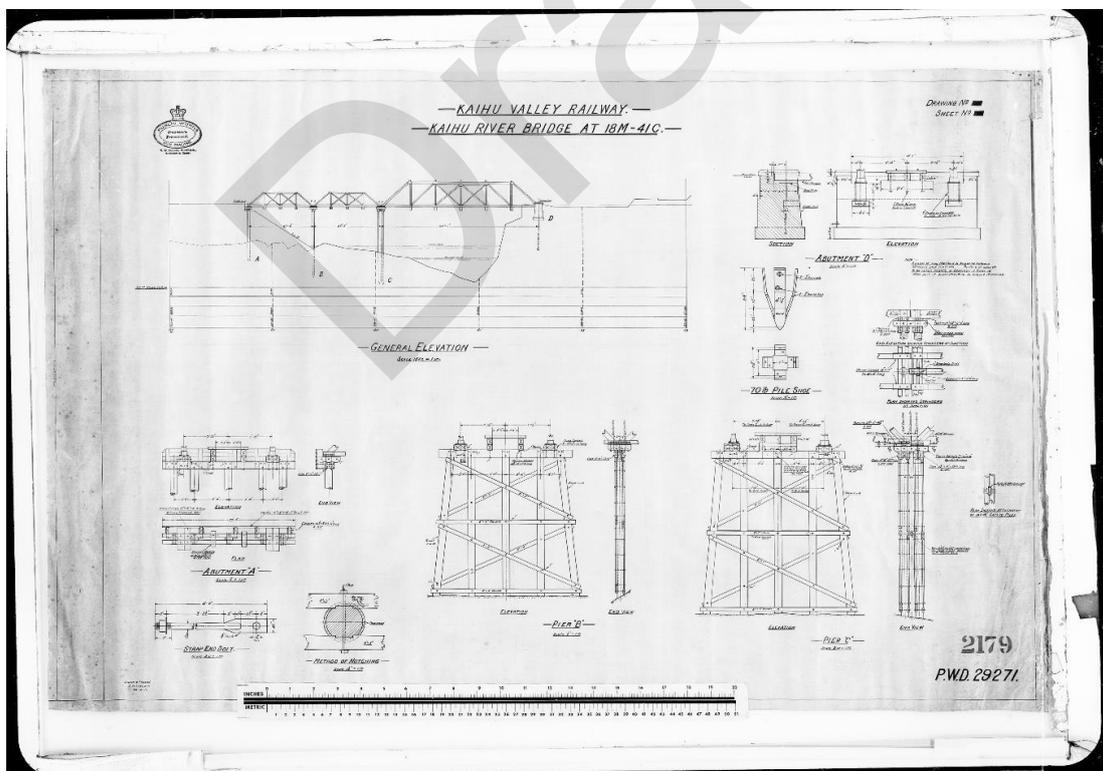


Figure 20: The original design for the bridge over the Kaihu River at Whatoro. The plan title reads "Kaihu Valley Railway Kaihu River Bridge at 19M-41C" (Archives N.Z.).

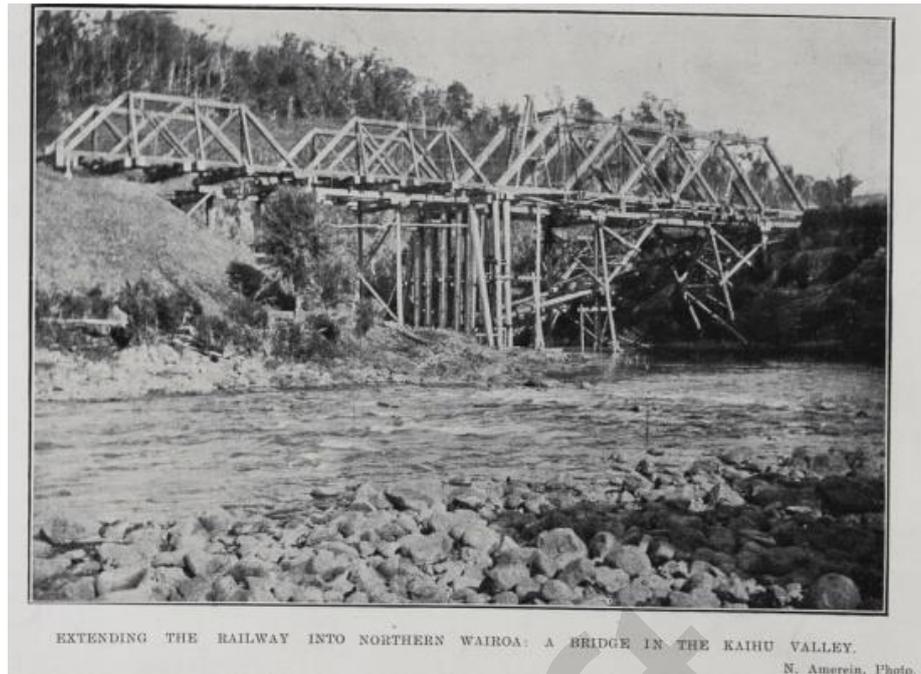


Figure 21: This is an image of the bridge shown in the plan in the previous image. The image was taken at Whatoro in 1913 before the line was opened. The bridge may be under construction as additional supports and a ladder on the bridge as well as men are in view (Auckland Weekly News, 14 August 1913, p.48, Auckland Libraries Heritage Collections AWNS-19130814-48-4).

7.3 Railway Stations

The assessment identified 19 stations that were once located on the Kaihu valley railway. This total includes the three stations in Dargaville, one of them a temporary one that operated from 1940 to 1943, but the Dargaville railway stations were not included in this assessment. The sites of 14 stations (excluding Dargaville) were located during the archaeological field survey. This does not include the concrete water tower base on Aranga Station Road which was probably located at the Tarawhati Station. An earlier list of the stations and distances from Dargaville is with the NZAA site record form for P07/72 in Appendix 8. This was based on existing records (Scoble 2010; Yonge 1985), but the research carried out for the KVT archaeological assessment indicates the existing listing needs to be updated²⁰.

²⁰ Further research would be necessary to determine the nature of the structures and their date of construction and removal and other details of the stations and associated buildings.



Figure 22: The shelter shed at Maitahi Station between the railway (in front) and the road (now SH12) behind the shelter (Crosado 1997). A modern view of the same location is included with the NZAA site record form for P07/92 attached to this report as Appendix 8.



Figure 23: The shelter shed at Maropiu Station in 1912 is visible in the background on the right. Sawn timber and logs are ready to be loaded on wagons on a siding. A train heading to Dargaville with wagons carrying timber and sawn wood as well as a closed carriage is passing between the stationary wagons and station. (Image from the [Kaihu Valley History Website](#)).

Shelters were the most common structures provided at stations. Shelters were provided at Parore, Rotu, Maitahi, Mamaranui, Maropiu, Ahikiwi, Kaihu, Whatoro and Donnellys Crossing according to the 1940 NZR inventory reproduced on the [Kaihu Valley History Website](#) (Figs. 22, 23). Most of the stations can be seen on aerial photographs to have had shelters prior to the railway closing.

Visible remains on the ground of most of the stations are sparse. Some stations are visible as a widening of the level railway formation area and have no other visible remains. Some of the stations originally were just an earth platform. Some had a raised earth platform with trench from where the earth for the platform was presumably dug. The Aranga Station presents the most readily visible example of this. Although the Aranga Station platform is outside the route of the KVR it will be visible from the KVT which follows the Aranga Station Road past it. None of the station buildings outside of Dargaville appear to have survived on site. Some station buildings were removed to other locations for other uses but research on the fate of these buildings was beyond this report.

At the first Opanake Station the passengers were reported to have initially used a shed owned by Maori for shelter until a new station and good sheds were opened in September 1893 ([New Zealand Herald](#), 12 September 1893, p.6), not long before the station was closed when railway was extended to the second Opanake Station (later called Kaihu).

Kaihu (originally the second station to be called Opanake Station) and Donnellys Crossing were the most significant rural stations with a number of railways and other buildings, aligned with the track. Figure 24, below, shows the station in 1912. The two Opanake Stations were the original termini of the railway in 1888 and 1893 respectively so date to before 1900. Both are therefore protected archaeological sites under the HNZPT Act. The railway to Donnellys Crossing Station opened in 1923 and it is not archaeological.



Figure 24: Looking south towards the Kaihu Railway Station. The caption in pencil beneath the image in the album reads “Main Street. Kaihu [& Railway Station]. There are stacks of sawn timber to the right of the railway line. Railways rolling stock is on a siding, centre right. Man standing to left of the tracks is possibly Peter Batistich outside the Batistich family home, which also housed a pool room and boarding house. It was later a general store until the depression of the 1930s (Photograph taken by Albert Percy Godber, 1912, Godber Collection, Alexander Turnbull Library PA1-q-103).



Figure 25: This is a recent view of the site of Kaihu Station looking south showing preparation for fencing along the KVT. The railway track ran down the centre of the image. This is one site area archaeologically uncompromised by the water line.

When the survey team visited the site of the railway station line at Kaihu proposed fence lines had been recently cleared to allow the erection of the new fence for the KVT. This exposed soil on either side of the where the rail track once ran (Fig. 25). A significant amount of historic archaeological material was exposed in the disturbed ground in the vicinity of the station. This included bottles and broken glass that included Davis Painkiller bottles, black beer and champagne bottle glass as well as historic ceramics, a boot, a marble, an area of kauri gum scrapings and other items. An historic view from a similar position is shown above in the Figure 24.

There were concrete, tile and brick remains of the station and other buildings outside the area that will be affected by the KVT.

Most of the stations also had sidings which were short, branch sections of track, where wagons were parked and could be loaded and off loaded. Sidings are visible in at the stations in Figures 23 and 24.

There were also coaling facilities in Donnellys Crossing and Dargaville Stations where the engines replenished their coal supplies.

7.4 Wharves

There were two known wharves associated with the railway; one built in Dargaville along with a small reclamation near to the start of the railway line. This was not included in the assessment.

Another small wharf extended into the Kaihu River at the gum diggers and trading settlement at Babylon. The wharf had with a tramline leading to it. The settlement is shown in surveyor's Percy Holt's 1888 Field Book No. 1703 used on the survey of the KVR and was shown on Plan PWD 5287 that Holt drew a few days after finishing surveying the railway, signing the plan on the 11 December 1887

7.5 Booms

Two booms were identified during the survey. The first was in Dargaville near to the goods yard and railway station and can be seen in a photograph taken in 1904 showing a train loaded with logs beside the boom (Fig. 27).



Figure 27: Photograph of a train load of kauri logs at a boom near to Dargaville Station in 1904. The image has the caption "A Boom and Truck of Kauri Logs at Dargaville Railway Station, Northern Wairoa." Dargaville was the southern terminus of the Kaihu Valley Railway, and logs are brought down by train ready for rafting down the Wairoa River. Note the boom surrounding the larger logs to contain them in the water. (Auckland Weekly News, 3 November 1904, p.6, Auckland Libraries Heritage Collections AWNS-19041103-6-3).

The second boom was located on the Kaihu River at the Kaihu Booms where Trounson's sawmill operated beside the railway as shown in the 1912 photograph in Figure 6. The floating logs held by the boom are visible behind the dam in the figure. The KVR railway is in the left foreground. The Kaihu Boom is marked on an 1891 plan numbered PWD 16829 Sheet 17 held at Archives N. Z. No image of the Kaihu boom has been located but Figure 27 shows how the boom would have looked.

7.6 Stockyards

A copy of the 1940 inventory of the stations on the Kaihu line by NZR displayed on the [Kaihu Valley History Website](#) identified “*cattle and sheep yards*” only at Donnellys Crossing. Stock, mainly cattle and sheep, were assembled at stockyards for transportation. Some stockyards had associated loading ramps.

A stockyard at Kaihu Station can be seen clearly on a 1956 aerial photograph²¹. It is visible as a small square enclosure; adjacent to a much larger rectangular enclosure with a fenced broad V shaped fenced entrance.

The remains of two features probably associated with stockyards were noted during the archaeological survey, one at Kaihu and one at Whatoro. They consisted of an earth ramp with wooden and metal bracing likely used for loading stock onto railway trucks from adjacent stockyards or other holding pens.



Figure 28: Looking east showing the base of the water supply tower at Tarawhati Station on the Aranga Station Road

²¹ Aerial Run Nos. 409/63, 4/11/1956 (Retrolens).

7.7 Water towers

Water towers were used to supply water to the train engines that was necessary as all of the engines used on the KVR were steam engines.

Concrete remains of two water towers were identified during the archaeological assessment on Aranga Station Road and at Donnellys Crossing beyond the station near to the end of the railway line.

The base of one water tower was located on Aranga Station Road during the archaeological field survey (Fig. 28). This was likely to be the site of the short-lived Tarawhati Station that opened in 1914. This water tower is visible in an old film entitled the Kaihu Valley Express from 21st March 1959, viewable on YouTube. No other evidence of the station was identified.

7.8 Culverts

Culverts are drains that run or ran beneath the railway to drain the land and to allow waters to recede after heavy rain or flooding. The culverts helped to keep the railway formations dry and stable. A total of 22 culverts were recorded during the field assessment but early railway plans indicate more are probably present. Many of the culverts have become obscured by earth movement and vegetation, particularly kikuyu grass (Figs. 29-31).

All of the culverts in the lower valley were probably wooden box structures when constructed but the wood have subsequently been replaced by other material mostly concrete in more modern times (Fig. 31). Others have been patched up with loose timber some of which is to stop entering the culverts.

Between the Kaihu Booms and Tarawhati the culverts were built of dressed rock and concrete. Four such culverts were recorded in 1912 as needing to be built to complete the new track. These culverts are more substantial than those in the lower valley.



Figure 29: A culvert and drain under the railway formation between the former Maitahi Station and where the road used to cross the railway. It is visible from SH12. The track here is used as a cattle race.



Figure 30: Culvert made from dressed stone set in mortar south of Whatoro Station.



Figure 31: Concrete culvert to the south of Whatoro Station.

7.9 Quarries

Extensive quarrying was required along the entire length of the KVR. The formation required large quantities of spoil to raise it above the wetlands on the flats. In the hillier areas excavations to create the track was necessary through ridges and cutting into hill sides to create benched surfaces for the track to be place. Spoil from these cuttings would have been used for the formation in lower areas.

Ballast, or the gravel on which the rail sleepers were placed, was also quarried along the railway. The geology of the Kaihu valley provided an ideal ballast source with gravel and sand, as did the basalt rock of the upper Kaihu and Waima River valleys.

Many quarry and ballast sources were identified on the early plans. A small number were identified during the archaeological survey but as the quarries were away from the actual line and many of the locations used for fill or ballast have yet to be identified. Several areas where rock had been quarried were identified between the Kaihu Booms and Whatoro during the assessment.

7.10 Mills and other industries

The flax mill at Flax Mill (modern Parore) on the north side of the Parore West Road has significant archaeological remains. The Flax Mill first opened in 1871 and included at least one large mill building, numerous cottages built for the mill workers, a plantation and gardens. The railway went through the complex mill buildings (See image on in Appendix on P07/92). The flaxmill gained its own railway siding when the railway was built.

The site of James Trounson's Kaihu Sawmill at the Kaihu Booms was the only sawmill site identified on the track during the field assessment (Fig. 6). The mill was opened by 1896.

7.11 Other buildings

Buildings other than stations associated with the railway were principally sheds and houses. Houses provided accommodation for railway families but were set back from the railway line and were therefore not generally included in this assessment.

Sheds associated with the railway were used for a variety of purposes related to the railway including storing goods, providing shelter for rail workers, storing jiggers and for other uses. Again, none of these buildings remain on their original sites and little trace of any of them is evident on the modern ground surface. A new goods shed was provided to the Opanake Station in 1893.

Dargaville, Mamaranui, Kaihu and Donnelly's Crossing were listed as having Goods Sheds on the 1940 inventory reproduced on the [Kaihu Valley History Website](#).

The engine sheds and other buildings in the Dargaville urban area were not included in this assessment.

Further research would be necessary to determine the nature of the structures and their dates of construction and removal and other details.



Figure 32: Taro growing at Whatoro. It was a significant food crop for Maori in the past.

7.12 Other sites

One location was noted during the field assessment that may reflect earlier Maori use and occupation. This was the presence of taro at Whatoro (Fig. 32). Taro was a significant crop grown by Maori for food in the past (Best 1976: 233-243; Furey 2006:13). Wild taro is becoming rarer today in the wild. Taro is a wetland crop that is grown in wetland areas and waterways as well as managed ponds and drains. The Kaihu valley is likely to have been the location of significant wetland taro fields in the past. There are, however, no such sites recorded there, although taro and evidence of wetland pond growing systems can be found at more isolated places in the wider area at Maunganui, Waikara and Waipoua. Evidence of wetland taro cultivation could potentially be encountered on land under and adjoining the railway formation.

Old fruit trees, including apples and a fig, were identified growing along the side of the railway. These may date back to the time when the railway was in use.

8.0 Discussion

8.1 Overview of results

The archaeological remains of the KVR have been recorded as NZAA archaeological site P07/92. Virtually the entire length of P07/92 will be affected by the development of the KVT. The railway formation from Dargaville to Whatoro should be considered to be an archaeological site under the HNZPT Act. As most of the KVT walking and cycling trail will be built on a recorded 19th century archaeological site and damage and destruction to the site is likely to occur during the construction of the KVT, a general archaeological Authority from the Heritage NZPT in Wellington under Section 44 of the HNZPT Act will be necessary to undertake the proposed work.

Prior to 1900 the railway had reached Trounson's Kaihu Sawmill and the Kaihu Booms just north of Kaihu Township. It was also recognised during this assessment that the earthworks for the rail formation were progressed a further 4.4 km north from the booms to Whatoro before 1900, although the work was not completed and the track itself was not laid until later. All of this section of the track that was constructed before 1900 is also archaeological and covered by the HNZPT Act.

The only portion of the railway that is not archaeological is the section that extended from Whatoro to Donnellys Crossing. This section, however, does have historical significance as is demonstrated by the Aranga Station site being scheduled as "*H85–Old Aranga Station*" in the KDC District Plan.

P07/92 is an unusual site as it is about 42 km long and includes a variety of structures and remains both on and adjacent to the site. Some of these structures and remains may be recorded as separate archaeological sites with NZAA in due course.

It is also probable that there are unrecorded and unrecognised archaeological sites or remains that are adjacent to or under the railway formation, but are not related to the railway itself. Such archaeological remains may originate from earlier or contemporary occupation by both Maori and European. Such remains may be discovered during the construction and may be affected by the development of the KVT. Early sites of Maori origin may be difficult to identify. Earthwork sites of Maori

origin would be comparatively easy to identify on the route (if any are present) but to date no such sites have been recognised. However, sites of Maori origin that leave less visible surface evidence such as villages and cultivations are likely to be difficult to detect on the ground surface and may have become obscured by the construction and use of the KVT and associated land clearance and use, drainage and ploughing. These activities all act to obscure archaeological remains. Such sites should be recorded with NZAA if they are identified. Historic records and the first maps of the railway demonstrate that sites earlier than the KVT may be present in the valley.

Known archaeological sites of European origin also remain unrecorded along the route of the railway. Most obviously these include the flax mill, at Flax Mill (modern Parore) and the Kaihu sawmill. Only one sawmill, the site of Trounson's sawmill just north of Kaihu, has been identified to date. It is the only sawmill shown in the Kaihu valley on the 1906-1907 map of sawmill location (Fig. 4). These sites require further research and should be recorded with NZAA as separate sites.

Table 2: Summary of archaeological values of P07/92.

Significance	Value	Comment
Integrity	High	The railway remains very visible for its entire route & generally remains in good condition although it has had various uses in the past 62 years. There is a good potential for the survival of archaeological evidence along the KVT route.
Rarity	Medium – high	Privately built intact & abandoned railways are rare in the Northland.
Archaeological context	Medium	The site forms a significant part of a relatively intact, but under-recorded historic & early archaeological landscape spanning over 40 km.
Information potential	High - medium	The site has potential to provide historic & scientific information, both on the rail formation itself, on adjoining land & from under the historic formation.
Amenity value	Very High	The site is in public ownership & proposed for development as a walking & cycling track. The site has a very high potential for

		future use & historic interpretation.
Cultural value	High	Maori. The area has significant historic value to tangata whenua with the presence of places of historic importance & its association with past leaders & family members. The overall cultural significance of the railway is for tangata whenua to determine.

8.2 Archaeological Significance and Value

The KVR site proposed for development as a walking and cycleway has been assessed for archaeological significance using criteria provided by the HNZPT and with additional guidelines from DOC. The HNZPT guidelines identify rarity or uniqueness, condition, contextual value, information potential, amenity value, and cultural associations (NZHPT 2019:9-10). The criteria identified by DOC are slightly different but are more fully described. They include period, rarity, documentation, group value, survival/condition, fragility/vulnerability, diversity, and potential (Walton 1999). Table 3 summarises the archaeological values.

The KVR has significant archaeological and historical value based on the criteria discussed. It is a large (long) structure that played a significance role in the development of the Northern Wairoa and Kaipara. The railway provided the primary mechanism by which the kauri forest was removed from the Kaihu valley landscape transforming the vast natural forested landscape of the Kaihu valley and the surrounding ranges into cleared, grassed and cultivated farmland. More recently much of hill country has been planted in pines, with much of it now entering a second logging rotation. The railway transported the logs and timber to market and also assisted with the transport for the flax and kauri gum industries. It also provided transport for dairy products and stock to market and carried general goods and passengers.

Integrity/ condition

The railway formation is an exceptional archaeological feature because of its length and because its original characteristics have survived in a very visible state for virtually its entire length across the landscape from Dargaville to Donnellys Crossing. Almost the entire length of the site is proposed for the use in the development.

Although a significant length of the formation (from near to Waikaraka Marae to Dargaville) has been compromised through installation of the Dargaville water supply pipeline the physical structure remains relatively intact and overall in good condition. Sections of the formation have also been adapted to be used as public roads. Its relatively complete and intact condition is why it is so very suitable for the proposed development.

The relative lack of development in the Kaihu valley area means the archaeological remains of many of the structures and features associated with the railway can be expected to have survived in a reasonable to good condition.

Rarity/ uniqueness

While railways extend the length and breadth of New Zealand with most built during the 19th century many of the branch lines have since fallen into disuse, as with the KVT. What is unusual and unique with the KVT is the survival of the entire length of the early industrial structure. The formation has survived 62 years of alternative uses relatively intact. It was the only railway in the area (other than bush tramways) until the opening of the Dargaville Branch in 1943.

The value of the railway is recognised by the scheduling of the Aranga Station in the KDC heritage list.

Contextual Value

The KVR is a significant and dominant feature of the historic archaeological landscape in the Kaihu valley that has survived in relatively good condition. It provides an enduring symbol representing a radical change that the Kaihu valley underwent from the late 19th century onwards. It provides a unifying feature linking Donnellys Crossing to Dargaville.

A diversity of rail related sites and structures are located on or adjacent to the main line. These sites include facilities to support the functioning of the railway such as stations, goods and other sheds, wharves, water towers, and houses. Other structures include the remains of at least 30 rail bridges.

The lack of modern intensive development in the valley also means that a diversity of other associated archaeological sites and historic features, such as the settlements, flax mills and a sawmill along the line are also likely to remain in good condition creating a rich context for the KVT. While the rail line is one uniform feature that extends for 42 km the diversity of other archaeological remains along the line enrich its significance with the railway linking them.

There are only a limited number of recorded archaeological sites in the Kaihu River valley. This reflects that lack of archaeological recording in the river valley rather than the lack of archaeological sites.

The site has significant associations with prominent European and Maori individuals from the 19th and early 20th centuries. It played an important role in the lives of the residents of the Kaihu River valley and the development of the valley and surrounding area.

Information Potential

The archaeology of the KVR and the associated places along its length has potential to contribute to our knowledge and understanding of the history of its development and use. Together with the site(s) in the wider valley it can help to inform our understanding of the sequence of occupation, lifeways, land use and pattern of settlement.

Little historic or archaeological research has been carried out in the area and more research into the construction of the railway and its history of use, as well as the communities who lived and worked on and beside it and travelled on it, remains to be undertaken. Any intact archaeology in the ground has potential to make a significant contribution to our knowledge of the history of the area.

The railway formation itself has also protected a buried 42 km lineal sample of the historic landscape. This is most notable across the valley wetlands where the large earth embankment was put in place, at times using tree heads and logs to support it. The buried sample may provide information about the past landscape and is likely to

have considerable future scientific, and potentially archaeological and traditional Maori significance.

In historic times the Kaihu Valley area was extensively modified by timber milling, flax harvesting, gum digging and subsequent farming activities that may have damaged, destroyed or obscured archaeological evidence from earlier times. However, these historic activities themselves may also contribute to the archaeological record in the area. It is likely that project earthworks that adjoin the railway will reveal archaeological evidence of both Maori and European land use and settlement. Such evidence could potentially have a high archaeological value and provide information past settlement and land-use.

Amenity Value

The route of the KVR has exceptional potential for amenity use as an off-road recreational walking and cycle way and as a tourist development. The proposal to develop the site as a walking and cycle track recognises this value.

The KVT has a high potential for educational use. There is considerable opportunity for historical interpretation along the length of the line. This would not only include the railway itself and the history of its construction and use, but also the histories of the kauri logging industry, kauri gum digging, and flax milling and processing as well as the development of agriculture in the valley.

The KVR will change from its current state of being relatively isolated, unknown and inaccessible with limited amenity value to become a significant attraction, with new facilities and services that will grow to support its use.

Almost the entire route of the KVT has remained in public ownership with KDC managing the lower section and DoC the upper section. This will simplify the process of developing the KVT as a public trail.

Cultural value

The KVT will promote knowledge of not only the railway but also the Maori community of the valley. The trail passes several marae along the route, including Te

Houhanga, Ahikiwi, Tama Te Uaua, Taita and Waikaraka. The KVR and the area it passed through have significant historic value to local Maori with the presence of places of historic importance, its association with past leaders and family, and from the use of the railway by family members. However, the overall Maori cultural significance of the railway is for tangata whenua to determine.

The valley also has been populated by a diverse range of other cultures, including British, Dalmatians, Scandinavians and others, who moved to the Northern Wairoa area to build the railway, harvest the timber, dig for kauri gum, process flax and settle.

Unrecorded archaeological remains are highly likely to be present on the route of the KVT. These could be related to early Maori settlement and land-use as well as development of the railway and subsequent land use. The railway passes through areas with concentrated (but unrecorded) historic Maori settlement in the Kaihu River valley.

8.3 HNZPT Authority Requirements

The railway has been recorded as a lengthy archaeological site virtually all of which will be included in the development. Most of the railway was constructed before 1900. Additional archaeological and historical sites also can be reasonably expected to be encountered during the development.

An HNZPT Authority must be obtained by KDC before earthworks for the KVT construction can commence when the earthworks may affect archaeological remains. Obtaining an HNZPT Authority is a legal requirement.

An Authority application is usually required to include final plans of the relevant development on which the archaeological assessment is based. Evidence of consultation with tangata whenua is necessary with the application. This archaeological assessment is also a requirement. HNZPT provide a template to guide the production of archaeological assessments and completing the Authority application form on their website (HNZPT 2019).

HNZPT will normally accept or reject an application for an Authority application within 5 working days. Once an application is accepted by HNZPT 20 working days are allowed to process an application. Then after an Authority is issued there is a 15 day stand-down period before the Authority can be activated. This is to allow for appeals to the Environment Court. Consequently, once an application is lodged, it normally takes 6-8 weeks for it to be processed and before the Authority can be activated and actual earthworks that may affect archaeological remain can commence.

The Authority application process normally includes the nomination and agreement of an archaeologist to carry out the work under the Authority. The person is nominated under Section 45 of the HNZPT Act 2014. This nomination must be approved by HNZPT and meet their standards. The archaeologist is required to sign the Authority application form confirming that they agree to conform to accepted archaeological practice in undertaking archaeological work required by the Authority. Alternatively the archaeologist can be appointed after the Authority has been issued, but before the development earthworks commence.

The possibility that previously unrecorded sites will be exposed during the KVT development should be provided for by putting appropriate procedures in place under an Authority from HNZPT prior to the start of works.

An HNZPT Authority contains *Conditions* that are legal requirements set by HNZPT. The conditions define the archaeological procedures and mitigation that are required. The conditions can be reviewed by the HNZPT or appealed to court by the applicant. HNZPT apply standard conditions to most Authorities. Conditions usually include a requirement that any earthworks that may affect any archaeological site must be monitored by the Section 45 archaeologist or their nominee. Another standard HNZPT condition is that all archaeological evidence encountered during the exercise of an Authority must be investigated, recorded, and analysed in accordance with current archaeological practice.

HNZPT will require an *Archaeological Management Plan* to define procedures for the discovery and investigation of any affected archaeological sites. HNZPT require

the plan to be written with archaeological advice by the Authority holder. The Management Plan must be approved in writing by HNZPT prior to the commencement of earthworks that may affect archaeological remains. Any Authority issued by HNZPT will require the development works to be carried out in accordance with the Archaeological Management Plan.

The Archaeological Management Plan also incorporates operational guidelines and procedures for day-to-day activities that may affect archaeological sites during earthworks. HNZPT require the plan to include methods to protect any archaeological sites or features from damage, wherever possible. The plan also includes procedures for investigation or recording of archaeological information, the role, responsibility and level of authority of the Section 45 approved archaeologist, protocols for the unexpected discovery of archaeological material, on-site briefing of contractors by the archaeologist, the responsibilities of contractors with regard to notification of archaeological sites, requirements for stand down periods to enable archaeological work, mechanisms for dispute resolution, and other details.

Standard Authority requirements ensure that tangata whenua receive notification of the commencement of work, requirements regarding the undertaking of tikanga Maori protocols, and guidelines for the discovery of taonga or human burial. HNZPT have a separate guideline for discovery of human remains (koiwi) (HNZPT 2014). Each Authority has requirements so that tangata whenua take a leading role whenever human bones are uncovered.

Tangata whenua should also express their requirements regarding tikanga, monitoring, or other matters in a letter or other document provided to an Authority applicant as evidence of consultation. Evidence of consultation with tangata whenua is required by HNZPT as part of an Authority application.

HNZPT Authorities also require production of written interim and final reports after the completion of the archaeological work by the Section 45 archaeologist and updating of NZAA site record forms.

9.0 Assessment Of Effects

9.1 Limitations & Constraints

The 42 km extent of the site and its substantial earthworks provided unique problems for an archaeological assessment. Over 100 features and places of archaeological and historical interest were located during the field survey. The length of the site, the number of features and sites, and the volume of information about the railway made it impossible to comprehensively document or report everything in this assessment. Some of these places themselves, such as the stations, the sawmill, and the flax mill should be recorded with NZAA as individual archaeological sites. Some of these places will become recorded sites within the wider railway site, P07/92.

There was confusion with the recorded dates of when stations opened and operated. The stations open while the railway was running changed over time. Some stations closed and new ones opened.

There has been confusion with the names of places on the rail line. Kaihu was the original name of where Dargaville became established. Modern Kaihu was originally called Opanake. The original terminus of the railway was called Opanake but it was some distance short of the settlement then called Opanake (and later called Kaihu). Tarawhati was also called Waima. This caused problems and appears to have resulted in possible errors in some accounts from the past. Both Kaihu and Opanake were also the names of the blocks of Maori land the railway passed through. Modern Kaihu is located in the Opanake land block.

Archaeological survey techniques (based on visual field inspection) generally do not allow the identification of most subsurface archaeological features. This assessment also relied, in part, on historic research to identify potential past archaeological deposits. Archaeological survey does not exclude the possibility that additional sites are present on the railway route.

The extent of the railway site, the time available to research the complex history and the time required to carry out an on-ground survey together limited the extent of both recording and research. This meant that the field work focused on the old rail

track itself and little time was available to look for archaeological evidence of other sites beside the track on adjoining land. Further work is necessary and could be accommodated within the HNZPT Authority requirements.

The site also has undergone considerable and on-going modification since its construction through use, erosion, maintenance, and redevelopment. Since the railway was retired much of the track has been used for vehicle tracks and farm races with some of the railway also incorporated into the modern state highway and rural road network. This use limited visibility of the ground surface on parts of the railway. The use of the much of rail route for farming purposes during the field assessment limited access to some areas and some rural sections of the track were not inspected as access was not available.

Grass and other vegetation on the track varied with different grass types and levels of stock grazing. Long grass limited visibility of the track and nearby surfaces. In places larger vegetation growing along the sides of the track was encroaching onto the formation and obscured the ground surface.

While this assessment covers aspects of the Maori history in the wider area, and assesses archaeological values associated with Maori sites, cultural values have not been assessed. Such assessments can only be made by the tangata whenua. Maori cultural concerns may encompass a wider range of values than those associated with archaeological sites and archaeological survey cannot necessarily detect wahi tapu and other sites of traditional significance to Maori. The historical association of the general area with the tangata whenua is evident from the Maori population, history, Maori place names and the current location of marae.

Several sections of the old railway track were not included in the survey. These were the section of track between Aranga Station and Donnellys Crossing; a few hundred metres between just south of Kaihu Booms to where the long strait ends north of Kaihu Station; the area between the bridge south of Mamaranui to the bridge south of Maitahi Rd (where Taita Station was located); and a few hundred metres between the only culvert north of Manning Rd Crossing (north of Parore) and south of the old bridge site south of Babylon. The urban area of Dargaville and the stations and other

railway facilities located there were not included in the field survey, but are referenced here.

9.2 Assessment of effects

The entire 42 km length of the railway between Dargaville and Donnellys Crossing can be expected to be affected by the development of the KVT. Compliance with the proposed archaeological Authority and Consent conditions can be expected to adequately manage adverse effects of the KVT on archaeology and heritage values. This and the future opportunities from the KVT development to highlight the unique history and heritage of the area will mitigate adverse effects. Over all, this should result in a positive outcome.

The railway has been in existence for up to 138 years and with a site of this age and length damage from use, redevelopment and reuse has occurred. Natural forces of erosion and flooding also have inflicted damage. The effects of nature and the use and development of the formation can be expected to vary considerably. Most of the overt signs of the railway other than the old earth formation, including the track, sleepers and ballast have been removed as have the stations and other buildings and facilities beside the track. The rail formation has had a variety of uses including as farm tracks and stock races, with some of the old track and bridges also being converted for use for public roads. The old rail formation from near to Waiparataniwha Stream (or Waikaraka Marae) to Dargaville has also been used to carry the Dargaville water supply pipeline. The pipeline has been dug into the rail formation and has been recently undergoing renewal.

Plans for the proposed cycleway involve the cutting away of between 0.30-0.50 m of material from the existing surface, where necessary, to create a new surface with the gravel, that will be compacted. The proposed excavation depth could contain remains of the original railway and the earthworks will result in the destruction of such remains. It is, however, anticipated in the earthworks planning that much less of the surface may be needed to be removed where reasonably flat and compacted surfaces already exist. From an archaeological perspective, less cutting would help to limit the destruction of any remaining archaeological remains. Adding more fill would help to protect archaeological and historic evidence that are located near to the existing

formation surface. This is particularly relevant to the railway north of Waikaraka Marae as it is likely to have more intact historic remains.

The section of the KVR running north from Waikaraka Marae to the Kaihu Booms as far as we know is the only archaeological section of the former completed railway that has not been extensively damaged by the Dargaville water supply pipeline. This makes this section more valuable from an archaeological and historic perspective than elsewhere. As far as practical, we would recommend minimal digging and a greater use of fill along this particular section to limit damage and protect the archaeological values.

The earthworks on the section of the track between the Booms and Whatoro were also constructed before 1900 but the track there was not laid until later and has less potential information value. The stone culverts on this section are unique and of particular note. The culverts may be vulnerable to damage by larger machinery and earthworks should be limited and closely managed in the vicinity of these culverts. Again, it is desirable that material be added to the proposed trackway rather than digging into the rail formation to create a suitable new track surface.

The historic earthworks at Aranga Station are particularly well preserved. As noted earlier this site is scheduled in the Kaipara District Plan (H85 – Old Aranga Station). This is located where the railway corridor intersects with Aranga Station Road. However, the proposed development will not affect H85 as the KVT follows Aranga Station Road in this vicinity (not the KVR).

Construction of farm races beside the existing rail formation is proposed in some places to provide a replacement for the current use of the old rail formation for farm purposes (Appendix XX). Construction of new adjoining races has a high probability of encountering archaeological remains. Such archaeological evidence may be related to the construction and use of the railway but also may originate from occupation and land-use that pre-dates the railway. Historic maps show that the railway passed through and over inhabited areas and cultivations. Use of fill to build raised races would help to ensure that archaeological remains are not exposed and would provide protection.

Old wood used and buried in, under or adjoining the original rail formation will be particularly vulnerable to becoming degraded if it is exposed during the work. Buried wet wood exposed to air dries and starts to decay rapidly unless appropriately treated. Of particular concern are buried kauri heads and other timber that was used to form a corduroy path for the construction of the railway over swampy areas. Wooden fascines were also used at the first Kaihu River bridgehead and may have been used elsewhere along the route to stabilise banks and control erosion.

Finally, there are three railway sleepers located in-situ at the end of the scheduled Aranga Station site (Fig. 33). The sleepers are firmly embedded in the actual roadway and have survived the grading and other road works over the years since the dismantling of the railway. The sleepers could be managed so they survive into the foreseeable future provided road work teams know of their historical importance and their presence is noted in road planning and management documents.



Figure 33: A sleeper feature at the very western end of Aranga Station. The sleepers are set into Aranga Station Road and have somewhat survived graders and other road workings over the years.

10.0 Conclusions

The KVR between Dargaville and the Kaihu Booms was constructed and operated before 1900 and meets the definition of an archaeological site under the HNZPT Act 2014. All archaeological sites that predate 1900 are protected under the HNZPT Act. The earthworks preparing the section of track between the Booms and Whatoro were also undertaken before 1900 and the formation here can be considered to be archaeological, although the metal track was not added until later.

As a significant portion of the KVR was constructed before 1900 an archaeological Authority must be applied for under Section 44(a) of the HNZPT Act 2014 and granted by HNZPT prior to earthworks commencing on the track between Dargaville and Whatoro. The extent, construction, age, condition and history make the KVR a significant archaeological site.

The earthworks required for the proposed KVT development means that the historic KVR formation will be affected by the construction. There is a high potential for the discovery of archaeological features related to the railway construction and use during the development. Evidence of earlier Maori or European occupation or land use may also be present on areas that are under and adjoin the track formation.

The railway has undergone considerable modification since its construction through on-going use, maintenance, and redevelopment. The tracks and ballast were removed after 1959. Subsequently most of the actual formation has been continually in use for public roads and for farming purposes. This is likely to have degraded the archaeological value of sections of the rail formation surface.

Overall, the potential adverse effects of the development on surviving archaeological values on the railway formation can probably be mitigated appropriately through research and the recovery of information relating to the history of the area under the archaeological provisions of the HNZPT Act 2014.

The archaeological Authority application should include the whole of the KVT and cover all activities that require earth stripping and moving. This will allow the

development work to proceed with minimal interruptions for archaeological requirements. If an archaeological Authority is not obtained before earthworks commence and the archaeological remains anticipated by this report are uncovered, such work would be required to halt while an HNZPT Authority is obtained.

Consultation with tangata whenua is necessary for an application for an archaeological Authority. Archaeological survey on its own cannot always detect all sites of significance to Maori and tangata whenua need to be consulted regarding known archaeological sites as well as sites such as wahi tapu in the project area. A cultural impact assessment (CIA) from Te Roroa would be of value. Alternatively, or in addition to a CIA, tangata whenua should also express their requirements regarding tikanga, monitoring or other matters in a letter or other document provided to the applicant to include in both their Resource Consent and the HNZPT Authority application.

11.0 Recommendations

An HNZPT Authority to modify PO7/92 and other archaeological sites within the development area should be applied for under Section 44(a) of the HNZPT Act 2014 prior to the start of earthworks that may affect archaeological remains.

It is recommended that HNZPT issue an Authority to facilitate the development of a walking and cycling trail subject to standard Authority conditions as this is an appropriate use for the historic rail formation and will help to ensure its preservation into the future.

Wherever possible, particularly on the rail formation north of Waikaraka Marae consideration should be given to minimizing surface scraping and removal of the archaeological or historic layers on the surface of the railway formation. Fill can be used to provide a stable surface for the new trackway.

Further research will be beneficial and assist with obtaining a more comprehensive understanding of the development and use of the KVR and associated sites.

The adverse effects of the construction earthworks should be mitigated through archaeological monitoring and where appropriate investigation to recover information relating to the history of the railway as is normally required under an archaeological Authority issued by HNZPT under the HNZPT Act.

An Archaeological Management Plan should be developed as part of the authority application, setting out procedures to be followed if archaeological remains, taonga tuturu or koiwi tangata (human remains) are exposed during the KVT trail development. The archaeological management plan should be developed in consultation with Te Roroa.

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