

COMBES/DALDY LIME WORKS
34 & 36 SANDSPIT ROAD, WARKWORTH, AUCKLAND
HISTORIC HERITAGE IMPACT ASSESSMENT
SUBDIVISION AND LANDUSE APPLICATION
PREPARED FOR THE KILNS LIMITED
APRIL 2022



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MARCH 2022**

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Cover image: Looking south over the southern end of 36 Sandspit Road towards the Combes/Daldy Lime works general location, A Brown 06/04/2021.

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EXECUTIVE SUMMARY

This report assesses the effects on historic heritage related to a proposed subdivision application at 34-36 Sandspit Road, Warkworth. This subdivision is being applied for in tandem with a Private Change (PPC), which seeks the rezoning of approximately 2.9 hectares of land from Future Urban to Residential – Mixed Housing Urban under the Auckland Unitary Plan (AUP). The PPC will enable future residential development to be undertaken subject to granting of subdivision and land use consent applications that this document has been prepared for.

The Combes/Daldy Lime works site is located within the extent of place for a scheduled category B historic heritage place (AUP Schedule 14.1; ID 569). It is also a pre-1900 recorded archaeological site (NZAA R09/2240), protected under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA). This report contains the results of historical research, archaeological field survey, geophysical survey, and exploratory archaeological investigations carried out by the applicant to better understand the Combes/Daldy Lime works site.

Auckland Council Plan Change 27 introduced the current AUP Historic Heritage Overlay *Extent of Place* in 2019. However, on the basis of the more recent investigations carried out by the Applicant, the extent introduced in PPC27 is best understood as an area of 'archaeological potential', rather than the actual location and physical extent of the scheduled historic heritage place.

A review of the planning history has established that a formal evaluation report, in accordance with the Auckland Council methodology/ guidelines and template for the assessment of historic heritage places, has not been undertaken for the scheduled site. Further physical investigation of the site was therefore necessary to try and determine the full extent of the site, particularly to establish if any subsurface archaeological remains are present, and additionally to define a possible 'quarry pit' area.

The AUP Historic Heritage Overlay provisions will be unchanged by the PPC. Resource consent will still be required for any future residential development within the AUP Historic Heritage Overlay, regardless of the zoning. This means that any adverse effects associated with future land development or land use proposals, on the Combes/Daldy Lime works site, will still need to be avoided, remedied or mitigated through future detailed development proposals.

This report therefore assesses the potential impact of the proposed subdivision and associated construction of buildings, identifies any potential adverse and beneficial effects and the possible scale of these effects on the identified historic heritage values of the Combes/Daldy Lime works Site. This includes both effects on identified features, and the likelihood of impact on potential undiscovered archaeological features.

The land development enabled by the PPC generates the need for a proposed esplanade reserve to be created, and this has been incorporated into the subdivision proposal. The esplanade reserve will add further protection to the Combes/Daldy Lime works site, as all the identified heritage features fall within the proposed esplanade / reserve areas set out in the subdivision. It also provides for public enjoyment opportunities, which are currently lacking as the site is in private ownership. There is a proposal by the Matakana Coast Trail Trust to build a pedestrian and cycle connection at the southern end of the subdivision area, to give effect to a Mahurangi River walkway/ cycleway network

along the northern side of the river. This will enable public access and interpretation opportunities for the Combes/Daldy lime works site, such as heritage interpretation panels and viewing areas, as well as opportunities for conservation works to the lime kilns where appropriate. The development proposes a public walkway down the western side of Accessway 2 that will enable access from the new subdivision road from Sandspit Road to the esplanade reserve and the limeworks kilns.

The AUP also has several alternative processes in place for archaeology if this was to be discovered outside of the AUP Historic Heritage Overlay, for example assessment criteria relating to land use earthworks for residential development. If any unknown archaeological remains were uncovered outside the Historic Heritage Overlay as part of future use and development within the plan change area, the Auckland Unitary Plan accidental discovery rule for archaeological sites (Chapter E Auckland-wide, E11 and E12) continue to apply. The AUP accidental discovery rule requires landowners to cease works, secure the area and contact Auckland Council if any archaeological discovery is made during earthworks and an archaeological authority from Heritage NZ is not in place. The rule clearly sets out the process for enabling inspection by Auckland Council staff and the requirements that must be met before work can recommence, ensuring that management processes are in place in the AUP for archaeological discovery outside the AUP Historic Heritage Overlay to manage potential adverse effects.

Regardless of the Unitary Plan Extent of Place or zoning, the Combes/Daldy Lime works site (NZAA R09/2240) is a pre-1900 site of occupation and activity, and additionally falls under the regulatory provisions of the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA). Part 3 of the HNZPTA requires any person wishing to undertake work that may damage, modify or destroy an archaeological site to obtain an authority from Heritage NZ for that work. Therefore, there is an additional, alternative method for the protection of archaeological sites.

The Subdivision and land use consent includes provisions for earthworks, construction of buildings, and geotechnical engineering, to establish infrastructure and building platforms.

The overall effect of works enabled by the consent sought is assessed as having potential for very low adverse impact on identified archaeological features within the site. This is because there will be minor areas of earthworks and infrastructure that cross over the line of the quarry tramway. These areas have been designed in such a way that earthworks will involve filling, rather than cutting, and there remains opportunity to protect identified features in situ.

There are also considerable benefits identified in the proposal. The arrangement of the reserve lots provides ongoing protection for the Combes/Daldy Lime works within the Historic Heritage Overlay and esplanade reserve. The provision of public access and the new walkway will provide opportunity to walk past the tramway and visit the kiln site directly, raising awareness of heritage values for a wider community.

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1 INTRODUCTION

1.1 Project background

The Kilns Limited is applying to the Auckland Council for a proposed development which will involve the subdivision of the subject property into 49 residential lots and the construction of 49 houses on the site (Figure 1). The existing structures will be demolished to enable the construction. The subdivision and land use application is made in conjunction with a private plan change (PPC) which seeks to rezone approximately 2.9 hectares of land from Future Urban to Residential – Mixed Housing Urban under the Auckland Unitary Plan.

Plan.Heritage Ltd has been commissioned by The Kilns Limited to undertake an assessment of effects on archaeology and historic heritage values for the subdivision and development proposal (The Proposal).

The Proposal project area (The Project Area) includes a historic heritage overlay under the Auckland Unitary Plan, for the Combes/Daldy Lime works site, located at 36 Sandspit Road, Warkworth (Figure 2). This is a scheduled category B historic heritage place (Schedule 14.1; ID 569) in the Auckland Unitary Plan. It is also a pre-1900 recorded archaeological site (NZAA R09/2240), protected under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA).

In summary, the Proposal includes the main elements:

- Constructing 49 new houses on the site, with a mixture of terraces, duplexes and standalone dwellings proposed.
- A new public road and private accessways will be constructed to facilitate access to the dwellings.
- New stormwater, wastewater, water supply and utility services will be constructed to serve the development
- Cut and fill earthworks required to create building platforms
- Associated retaining works
- Creation of reserves
- Proposal for pedestrian bridge and public accessway through areas of reserve

Recommendations are made in accordance with statutory requirements under the Resource Management Act 1991 (RMA). It is also noted the site falls under the regulatory provisions of the HNZPTA. The purpose of the report is to assess any potential direct, indirect, and cumulative impacts as a result of the Proposal on historic heritage.

Plan.Heritage Ltd. has been commissioned specifically for the reasons set out above, and this report should not be relied upon for any other purpose.

1.2 Methodology

The report involved desk-top survey and a visual inspection of the project area, as well as non-invasive geophysical investigation and subsequent exploratory investigations of the Project Area.

The following material has been reviewed in the preparation of this assessment:

- Auckland Council Unitary Plan (AUP), including Planning Maps and Schedule of Historic Heritage (14.1);
- Auckland Council Cultural Heritage Inventory (CHI);
- New Zealand Heritage List/ Rārangī Kōrero (HNZ List);
- New Zealand Archaeological Association (NZAA) ArchSite Database;
- Online historical maps, photos and aerials (e.g. Retrolens, Digital NZ, Alexander Turnbull Library, Auckland Libraries);
- Archival Research at Warkworth Museum and AC Archives and NZ Archives;
- Land Information New Zealand (LINZ) plans;
- Auckland Council property files; and
- Additional resources are cited in the references section.
- A detailed site survey was undertaken 06/04/2021, where visible physical archaeological features were identified and mapped
- Photographs were taken to record the visible remains, the immediate surrounds/ extent of place, and locations for exploratory investigation.
- A pre-lodgement/ application meeting was held with Heritage New Zealand and Auckland Council heritage staff on 03/05/2021. On the advice of Heritage New Zealand and Auckland Council
- A specialist geophysical investigation was carried out on 27 May 2021.
- Heritage New Zealand granted an authority to carry out an exploratory investigation of the site on 21 June 2021.
- The resource consent for the exploratory archaeological investigation LUC 60378963, was granted in December 2021.
- Consultation with Mana Whenua was carried out for this resource consent application, including a site visit with Courtney Shaw (Ngāti Manuhiri Settlement Trust) was undertaken on 20th May 2021.
- Exploratory investigation of the site was undertaken in January 2022.

The results of these investigations are summarised in the following report.

1.3 Report limitations

This assessment is based on geophysical and exploratory investigation and survey of the site, as well as desk-top primary and secondary sources available at the time of writing (see Section 1.2), therefore the conclusions drawn from this information rely on numerous sources. This report however cannot guarantee the accuracy of any source thus relied upon. Historical and contextual research was undertaken to an extent that enables the history of the place and historic heritage values to be understood. It is important to note that additional research may yield new information.

This is an assessment of effects on archaeological values and does not include an assessment of effects on Māori cultural values. Such assessments should only be made by the tangata whenua and will form part of the Plan Change process.

This report does not include a detailed structural or condition survey for the structural remains. It does not assess the historical attributes of any trees, noting there are no scheduled Notable trees on the site.

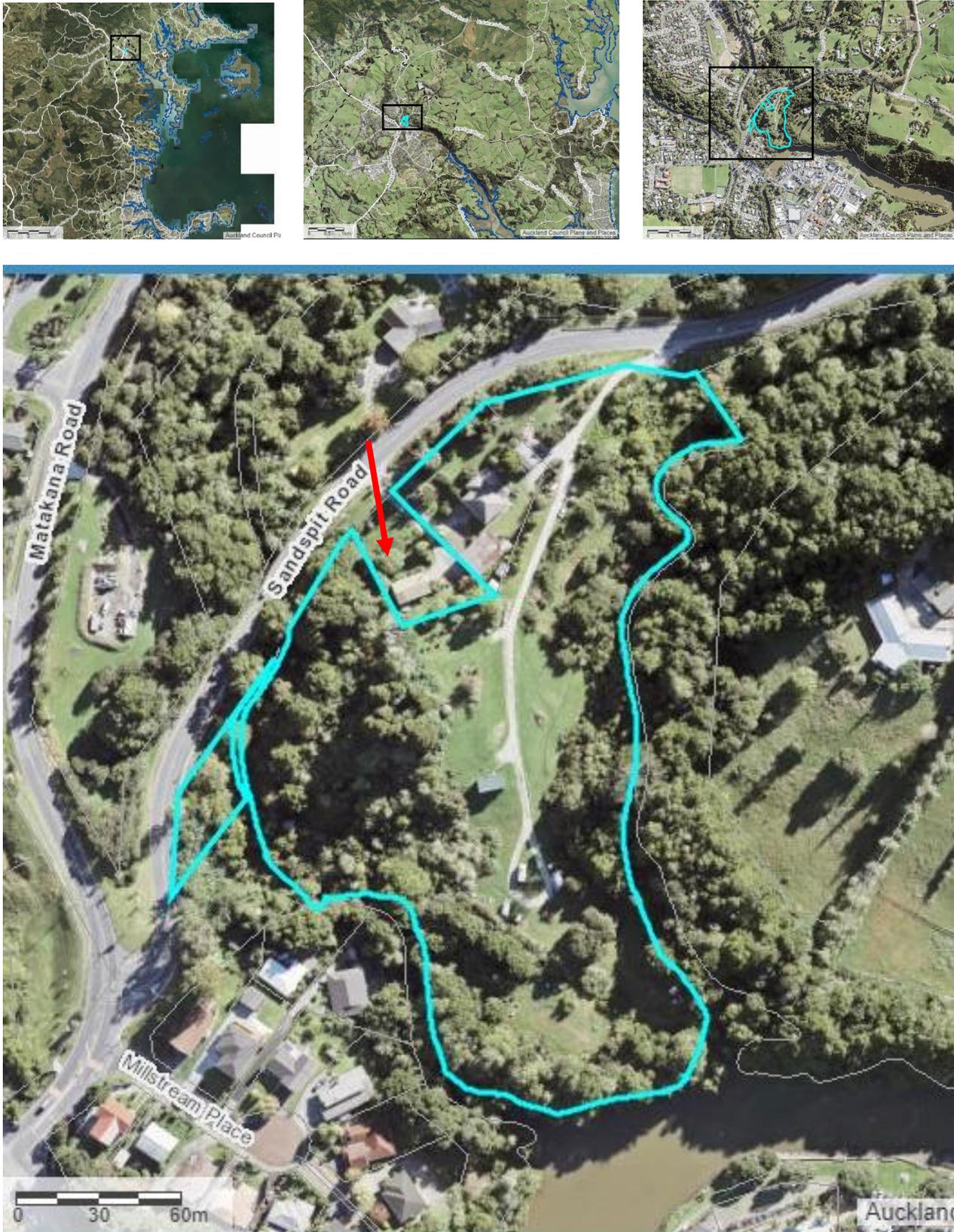


Figure 1. Site Plan showing the location and general context of the plan change area. 36 Sandspit Road, Warkworth, is outlined in blue. 34 Sandspit Road is arrowed and forms part of the subdivision area (Auckland Council Geomaps accessed March 2022).



Figure 2. Plan showing the extent of place introduced in the AUP Plan maps via Plan Change 27 (red area) for the Combes/Daldy Lime works site (Schedule 14.1; ID 569) (Auckland Council Geomaps accessed March 2022).

2 STATUTORY FRAMEWORK

There are two main pieces of legislation in New Zealand that control work affecting historic heritage sites (including archaeological sites). These are the Resource Management Act 1991 (RMA)¹ and the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA).

2.1 Resource Management Act 1991 (RMA)

Section 6 of the Resource Management Act (RMA) recognises as matters of national importance:

'the relationship of Māori 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)).

All persons exercising functions and powers under the RMA are required under Section 6 to recognise and provide for these matters of national importance when 'managing the use, development and protection of natural and physical resources'. Historic heritage sites are resources that should be sustainably managed by 'Avoiding, remedying, or mitigating any adverse effects of activities on the environment' (Section 5(2)(c)).

Historic heritage is defined (S2) as:

those natural and physical resources 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; (vi) technological'.
Historic heritage includes: '(i) historic sites, structures, places, and areas; (ii) archaeological sites; (iii) sites of significance to Māori, including wahi tapu; (iv) surroundings associated with the natural and physical resources.

Regional, district and local plans contain sections that help to identify, protect and manage historic heritage sites. The plans are prepared under the rules of the RMA. The Combes/Daldy Lime works site is statutorily protected through its formal inclusion in Schedule 14.1 Historic Heritage of the Auckland Unitary Plan. This establishes planning controls in the form of a Historic Heritage Overlay, the provisions of which are described in Section D17 of the AUP. The following regional policy statement objectives (AUP B5.2.1) for historic heritage in the Auckland Council AUP apply to the Historic Heritage Overlay:

- (1) Significant historic heritage places are identified and protected from inappropriate subdivision, use and development.*
- (2) Significant historic heritage places are used appropriately and their protection, management and conservation are encouraged, including retention, maintenance and adaptation.*

¹ Management of historic heritage is also administered under the Local Government Act 2002 (LGA) and there are also relevant historic heritage-related provisions under the Reserves Act 1977, the Building Act 2004 and the Marine and Coastal Area (Takutai Moana) Act 2011. There are a range of organisations involved including: Ministry for Culture and Heritage, Ministry for the Environment, Heritage New Zealand, local authorities, iwi and hapū, and community groups.

The regional policy statement policies (AUP B5.2.2) for the Historic Heritage Overlay cover:

- Identification and evaluation of historic heritage places;
- Protection of scheduled significant historic heritage places; and,
- Use of significant historic heritage places.

Any proposed works within the Combes/Daldy Lime works site scheduled extent of place must undergo a Heritage Impact Assessment to identify any effects on the scheduled site (AUP D17.9 special information requirements).

Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA)

Heritage New Zealand Pouhere Taonga (Heritage NZ) administers the HNZPTA. The HNZPTA contains a consent (authority) process that protects all archaeological sites whether recorded or not, and they may not be damaged or destroyed unless an Authority to modify an archaeological site has been issued by Heritage NZ (Section 42). An archaeological site is defined by the HNZPTA Section 6 as follows:

archaeological site means, subject to section 42(3),–
(a) any place in New Zealand, including any building or structure (or part of a building or structure) that –
(i) 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
(ii) provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and
(b) includes a site for which a declaration is made under section 43(1)

Under Section 42(3) an Authority is not required to permit work on a pre-1900 building unless the building is to be demolished.

Under Section 43(1) a place post-dating 1900 (including the site of a wreck that occurred after 1900) that could provide *significant evidence relating to the historical and cultural heritage of New Zealand* can be declared by Heritage NZ to be an archaeological site.

Authorities to modify archaeological sites can be applied for either in respect to archaeological sites within a specified area of land (Section 44(a)), or to modify a specific archaeological site where the effects will be no more than minor (Section 44(b)), or for the purpose of conducting a scientific investigation (Section 44(c)). Applications that relate to sites of Māori interest require consultation with (and in the case of scientific investigations the consent of) the appropriate iwi or hapu and are subject to the recommendations of the Māori Heritage Council of Heritage NZ.

The project area is associated with pre-1900 activity, therefore any proposed earthworks within the subject site should undergo an archaeological assessment to identify any requirements under the HNZPTA. The Combes/Daldy Lime works site itself is pre-1900 in date and cannot be demolished without an Authority from Heritage New Zealand.

In addition, an application may be made to carry out an exploratory investigation of any site or locality under Section 56, to confirm the presence, extent and nature of a site or suspected site. On

the advice of Heritage New Zealand further detailed archaeological investigation of the Combes/Daldy Lime works site will be undertaken in the future to further inform any subsequent resource consent applications and the authority for this investigation was granted on 21 June 2021.

3 HISTORICAL BACKGROUND

3.1 Early Māori settlement summary²

This information should not be viewed as complete or without other context. There are a large number of iwi historically associated with the Auckland region and many other histories known to tangata whenua.

The traditional history of the project area is part of the wider history of the coastal region between Mahurangi and Te Arai Point. The wider area was originally occupied by the Ngai Tahu people who traced their descent from Tahuhunui, commander of the Moekakara or Te Whakatuwhenua canoe that landed near Goat Island (Murdoch 1992). Around the 1620s a group of Ngati Awa migrated north from Kawhia to Tamaki. Led by Maki and his brother Mataahu, they conquered Tamaki and settled at Mt Smart. They then headed north. A battle was fought between Ngai Tahu and Maki's people and Ngai Tahu were defeated. It was around this time that the descendants of Maki and Mataahu became known as Kawerau and came to occupy the land from Takapuna to Te Arai and the Gulf Islands as far north as Hauturu (Little Barrier Island) (Murdoch 1992).

Maki divided the land between his sons and followers. Maeaeeriki was given land at Mangatawhiri and Tawharanui and his people became known as Ngati Raupo. Meanwhile Manuhiri's relatives, known as Ngati Manuhiri, settled the area between Whangateau and Pakiri. (Murdoch 1992). From early on Kawerau came under attack from the Marutuahu confederation (Ngati Maru, Ngati Whanaunga, Ngati Tamatera and Ngati Paoa) from the Hauraki Gulf (Simmonds n.d.). Rights to fish for school sharks were fought over between Kawerau and the Marutuahu tribes. Battles continued until the 1790s when a short-lived peace agreement was made (Murdoch 1992).

During the 1790s Kawerau were part of a Marutuahu war party that travelled to the Bay of Islands, where they engaged and defeated Ngapuhi at Waiwhariki near Puketona. In the 1820s Kawerau found themselves under threat from the musket armed Ngapuhi. Ngapuhi were defeated at a battle at Mahurangi in 1820, where the Ngapuhi leader Koriwhai was killed. In 1822 Ngapuhi sought to avenge the death of Koriwhai. They attacked Kawerau at Te Kohuroa (Matheson's Bay) and after an initial setback emerged victorious (Murdoch 1992).

In 1825 a large and important battle was fought at Auckland between Ngati Whatua and Ngapuhi. The Ngati Whatua force included the Kawerau people of the east coast. The battle was fought at Mangawhai and then at Te Ika a Ranganui near Kaiwaka. Ngapuhi emerged victorious despite heavy losses. The Kawerau people living between Pakiri and Whangaparaoa lost many warriors and fear of further attack caused them to leave their homes. Ngati Manuhiri sought refuge north of Whangarei with their Ngati Wai relatives. Ngati Rongo went to the Bay of Islands to stay with Nga

² This section is adapted from adapted from Farley & Clough 2008

Manu relatives and Ngati Raupo headed for Whangarei, where they were taken in by their Te Parawhau relatives (Pritchard 1983).

The name Mahurangi originally applied to a small island off Waiwera and to the wider bay. The harbour was named Kiaho and the Mahurangi River was Waihe. 'Mahurangi was an elderly woman in Hawaiki, the ancestral homeland of the Māori. Her special powers enabled the construction of the Tainui canoe to proceed, and this place was named Mahurangi during the exploration of the Hauraki Gulf by the Tainui canoe.' Later the name was applied to the whole area and the river. (ARC 2005)

3.2 Early European settlement

The earliest European settlement in the Mahurangi (and in the Auckland region) dates back to 1832, when a spar station was established by Gordon Browne for Captain Ranulph Dacre on the Pukapuka Peninsula on the western side of the Mahurangi River. Browne had obtained cutting rights from Hauraki Māori and employed many Māori labourers. The venture ended in 1834 when Captain Sadler arrived on HMS *Buffalo*, having obtained permission from the Ngapuhi chief Titore to take spars for the navy, and took over the supply of trees and the work force. Logging continued around the harbour and in 1844 the first sawmill was established at Warkworth by John Brown. After the foreshore area had been cleared, logging extended inland, continuing until the late 1930s, by which time all the kauri had been logged (ARC 2005).

Other early industries included shipbuilding, which flourished from c.1849 until 1880. At least 75 vessels were built in the Mahurangi area in this 30 year period. Lime kilns producing quicklime for mortar were established on the Mahurangi River by 1850, and the Wilson's cement works was established at Warkworth in 1872, producing the first Portland cement in the country by 1885. Farms progressively replaced kauri forest. (ARC 2005).

Warkworth³

In 1840 the Surveyor-General, Felton Mathew, sailed up the Mahurangi Harbour for the purpose of investigating the suitability of the land for settlement and industry. Mathew's report noted: '*Brick earth is abundant, and the forest in every direction presents a profusion of timber for building, almost entirely Kowdie [sic] [Kauri]. The river is perfectly adapted for navigation by steamers or small vessels; and the harbour forming the depot for shipping being at so short a distance I consider the spot I have described as being most admirably adapted for the formation of a town*' (Locker 2001:62).

The opportunities presented by the timber trade had already attracted a few Europeans to the area. From the late 1820s, camps of up to 300 seamen had been employed cutting and dressing spars for the Royal Navy, and a spar station at the Mahurangi Heads had been established by Captain Ranulph Dacre and Gordon Davies Browne in 1832 (Keys 1954: 18, 23).

Following the Mahurangi Purchase of 1841, it would be a decade before surveying was completed and land offered for sale to settlers along the Mahurangi River. In the interim, the Crown sought revenue from the land by issuing timber licenses (to cut wood or firewood) at £5 a year. One of the

³ Adapted from Farley et al. 2010

first licenses issued was to John Anderson Brown in 1844 (Locker 2001:66). Brown had lived in the Mahurangi as a squatter since 1843, and by the following year had constructed a dam, water-race and mill along the left bank of the Mahurangi River (Keys 1954: 32). This was the first water-powered timber mill in the district, and for a time the area was known as 'Brown's Mill'.

In 1853 Brown purchased 153 acres of land situated between the River and the proposed Great North road for £68 17s (Keys 1954: 35). Brown renamed the area Warkworth, and by 1854 quarter acre lots were advertised at £6-15 each (Locker 2001: 75). Settlement progressed at a slow rate, and by 1864 those town lots which had not been sold were put up for public auction.

The Mahurangi Library and the Mahurangi Post Office were opened in 1859, with Brown appointed as Postmaster. Brown was also elected chairman of the Mahurangi Highway Board in 1863, the same year in which the first Mahurangi School was established. Local industry expanded with the development of Henry Palmer's flour mill, which was in operation on the right side of the river by 1868, and the manufacture of lime for which Warkworth would become renowned (Keys 1954: 41-42).

The Establishment of the Lime works Industry at Warkworth

The geology of the Mahurangi district comprises rocks of the Waitemata Group, comprising sedimentary sandstones and mudstones. The Mahurangi area also features patches of chalky white limestone which are part of the Northland Allocthon (Balance 2009). The limestone deposits are known to occur to the north of Warkworth and along the upper reaches of the Mahurangi River. The natural lime deposits went on to play a significant role in the economic development of the Mahurangi area. The lime in its natural state was produced for the agricultural industry, increasing the alkalinity of soil to make nutrients more available; in its burnt form, lime was used as the key ingredient in mortar. Lime was later used in the production of cement (Wooller 2018; Locker 2001).

John Sullivan is thought to have been one of the first to quarry and burn lime in Warkworth as early as 1849 at which time he applied for a license to burn limestone and the following year applied for a license to quarry it. His quarry site was located close to where the Wilson Cement Works would be established (Locker 2001:264). Advertisements in 1850 show that Auckland entrepreneurs Walter Combes and William Daldy were selling Mahurangi lime from their Auckland store and they had wharfs nearby Sullivan for transportation.

In 1857, John Southgate acquired what appears to have been John Sullivan's site. Southgate built a hotel and several lime kilns on the land. The lime works was sold to Nathaniel Wilson in 1864, who continued manufacturing lime on the site, eventually establishing the Wilsons Cement Works in 1884. The company was credited with being the first producer of Portland cement in New Zealand and the Southern Hemisphere, and was responsible for the material used to construct the Warkworth Bridge in 1899 (Pearson Architects 2005: 9-12).

In around the 1850s/60s, Combes and Daldy had established a lime works near Brown's Mill on the right bank of the Mahurangi River, across the river from the small settlement that would become the bustling town of Warkworth.

3.3 Combes & Daldy Lime works ⁴

By the early 1850s, Combes and Daldy were involved in both the timber extraction and lime trades on the Mahurangi (Figure 4). The Combes/Daldy lime works was located above the northern bank of the Mahurangi River, opposite the Warkworth town centre, within the plan change area. These works are thought to have been the second lime works to be operated by John Southgate in partnership with the firm of Combes and Daldy, after the first operation proved unsuccessful at a different location down river. The property (Section 48, comprising 162 acres) on which the works were located was owned in 1864 by Combes and Southgate, and in 1888 by Wilsons Cement Company (DP 703).

Two early plans dated to 1864 (Figure 5; Figure 6) show the locations of kilns and other buildings/structures within the property. Plan SO 1150B (Figure 5) possibly shows two circular kilns and two rectangular structures located within the southern end of the property. The auction notice dated to the same year clearly shows two circular structures labelled "kilns" and two other features (likely to be buildings) as owned by Combes, Daldy & Co (Figure 6).

There is some uncertainty around the start date for the lime works with Otway (1950:32) and Keys (1954:43) placing it in 1859, and Brassey & Walker (2018) arguing for a later commencement date of 1862 based on a newspaper article from that year referring to a new lime works managed by Combes and Daldy that had just opened (*The Daily Southern Cross*, 22 May 1862:3; Figure 3). It is possible that the Combes/Daldy works were the second to be built on the site, and that there was an earlier works operated by or for J. A. Brown or Joseph Ragg (from as early as 1850), however the newspaper article makes no mention of a former lime works on the site.

The 1862 article describes the process on site (Figure 3), with the limestone being quarried inland and then transported to the kilns near the river by a tramway, 20 rods in length. The trucks carrying the limestone were then emptied into the kiln to produce the lime, which apparently set well (*Daily Southern Cross* 22 May 1862:3). In 1862 it was reported the lime kilns could burn 800 to 900 bushels at a time and the cargo was then transported by cutter along the river (*ibid*).

Lime was used as fertiliser and building purposes, such as producing mortar for bricks, plaster for walls and cement. Key suggests that shell was also brought upriver and used with limestone in the manufacturing process for agricultural lime (1953: 43). The finished product was shipped primarily to Auckland but was also exported to Australia and to other regions in New Zealand (*Auckland Star*, 22 February 1890, 5). It appears Combes and Daldy supplied lime for the Auckland and Drury Railway but were sued for overcharging in 1867 (*Daily Southern Cross*, Volume xxIII, issue 3147, 20 August 1867).

It is recorded that following the Combes and Daldy period of ownership, the works were subsequently operated by Southgate and Henry Palmer, and were sometimes referred to as 'Palmers'. The Palmer family owned the adjacent property further up the Mahurangi River, and Henry Palmer built and operated the flour mill on the south bank of the Mahurangi. Another name

⁴ Information sourced from Brassey & Walker 2018 and Wooller 2018

for the works was Joseph Ragg's lime works (Locker 2001:279), although it is unclear where he fits into the history of the site.

The lime works were still in operation in 1876, when Southgate opened a new works on the opposite side of the river near the end of Southgate Road (Locker 2001:279). The general view is that the lime works within the project area closed in the late 1870s, as by the 1880s the nearby Wilson Cement Works has started to dominate production.

MĀHURANGI LIMESTONE.—We saw a specimen of blue limestone yesterday at the stores of Messrs. Combes and Daldy, brought from the Mahurangi limestone quarry. The Mahurangi limestone appears well adapted for building purposes, but it is about to be made an article of commerce in another way. Messrs. Combes and Daldy having built a lime kiln, capable of burning from 800 to 900 bushels at a time, commenced lime burning last Monday, and the cutter 'Frances' has been despatched thither for the first cargo. The lime-kiln is connected with the quarry by a tramway, 20 rods in length, and the trucks are emptied into the orifice of the kiln, thus economising time and labour. We have been told this lime sets well, and if so it will be in demand now that our residents have begun erecting permanent buildings. As a fertiliser, on our heavy clay soils, it will be a boon to many settlers.

Figure 3. 1862 newspaper article about a lime works operated by Combes and Daldy, thought likely to be the subject lime works. Source: Daily Southern Cross 22 May 1862:3

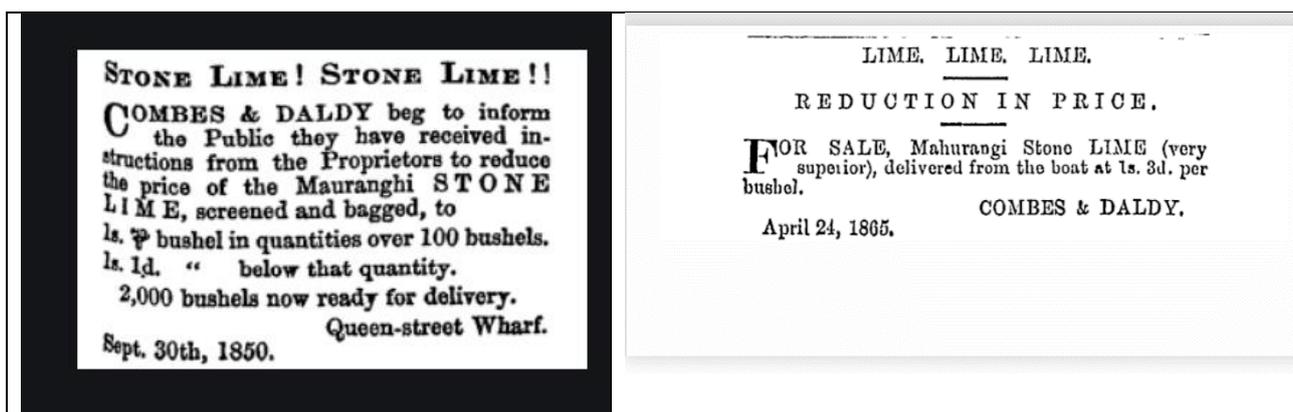


Figure 4. Left Combes & Daldy advert for Mahurangi Lime they were selling Mahurangi lime in their Auckland store (Daily Southern Cross, Volume Vi, Issue 341, 4 October 1850, Page 1) and right April 1865 (Daily Southern Cross, Volume Xxi, Issue 2423, 26 April 1865, Page 6)



Figure 5. Detail of SO 1150B (1864), showing the fledgling town of Warkworth along the Mahurangi River. Source: Quickmap

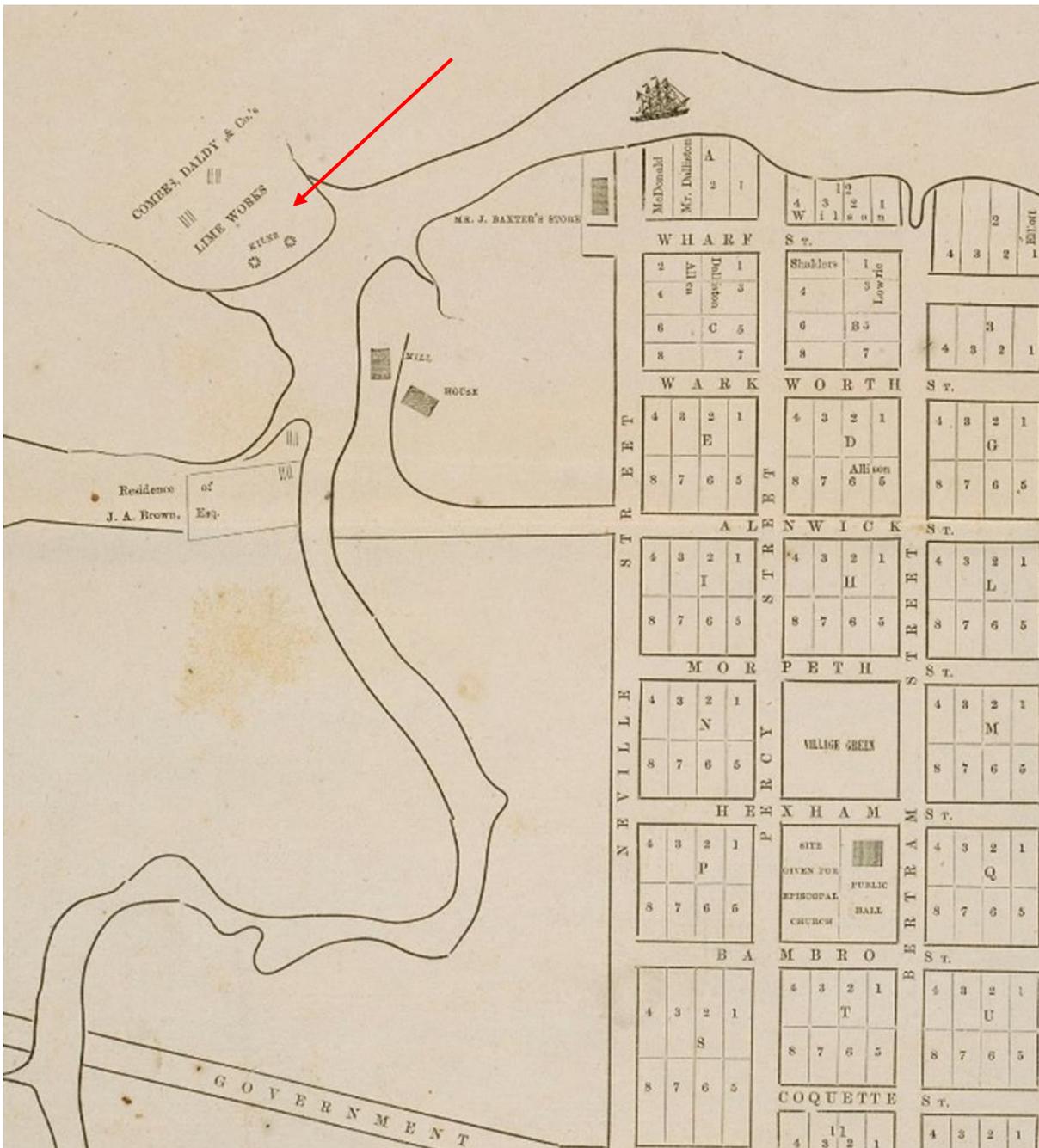


Figure 6. Detail of auction notice from 1864 entitled 'The Village of Warkworth, on the River Mahurangi Containing 89 Village Allotments'. Source: Auckland Libraries Heritage Collections NZ Map 4498-26

3.4 Early Aerials, Maps and Photography

Sources were searched for early aerials, maps and photography that relate to the subject site. Early plans did not reveal any detailed information relating to the Combes/Daldy lime works and site development prior to 1900 (Figure 7; Figure 10). The 1864 plans discussed above (Section 3.3) are the only ones located to date of sufficient detail to show features of interest within the plan change area. These however are not highly accurate and do not show all the likely features associated with the lime works during its operation (Figure 5, Figure 6). It is noted that 1855 plans of the area do not show the kilns (Figure 8), so based on existing records, a likely date of construction between 1885 – 1862 appears most likely. No early photographs of the subject site or lime works have been located in archives or online sources. Some records are still to be provided from NZ Archives at the time of writing.

A 1928 geological map of the area shows a dwelling within the subject site, located towards the northern end of the property and it is labelled "Palmer" (Figure 9). Further research on the land ownership history could help establish a likely date for the construction of the house. A 1931 aerial image of the subject site shows the house of unknown date, formerly located near the present-day water tank (Figure 13). The building appears to have had a hipped roof (possibly tiled) and two chimneys. The east elevation had four windows (possibly double hung sash windows based on proportions) and the entrance is likely to have been orientated towards the north / Sandspit Road (with a path and garage added later). It may have had a front verandah and rear porch. The building could possibly be pre-1900 in date, however it is more likely to be an early 20th century transitional villa/ bungalow, based on architectural form and orientation towards the street.

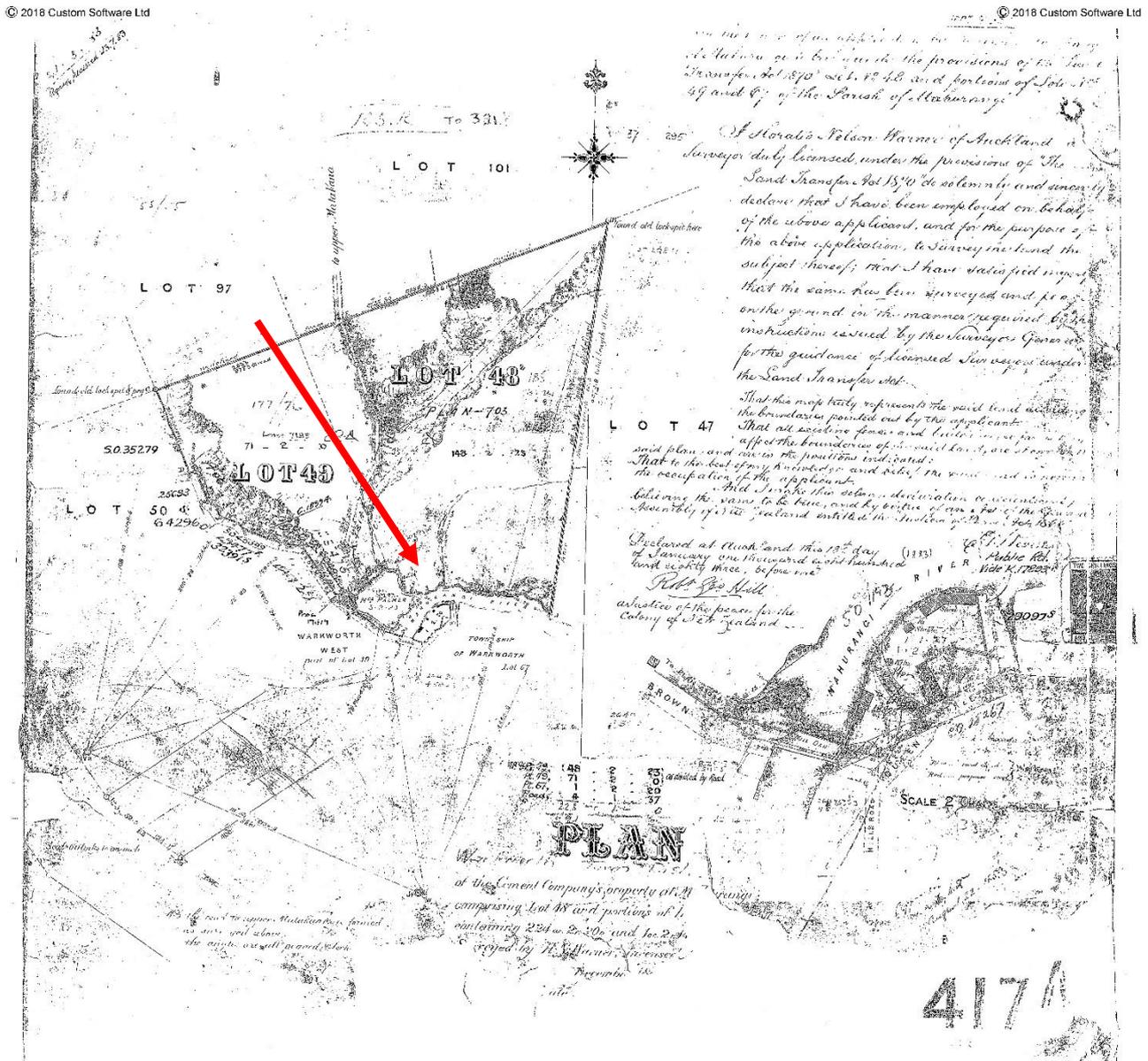
Since the mid-20th century, it would appear most of the activity within the property has been concentrated in the northern end (Auckland Council Property files), close to Sandspit Road, which provides vehicle access to SH1 and Warkworth town centre. 1931 and 1962 aerial photographs show the southern area of the subject site, with no visible remains associated with the lime works buildings extant, but visible features today such as the tramway are evident (Figure 13; Figure 14).

In 1951 subdivision at the north end of 36 Sandspit Road (now Lot 1 39534) was carried out (Figure 11). A timber frame building on concrete piles was constructed within the newly formed lot in 1952 for Mr D.N.Vipond (Auckland Council Property files). This was followed by construction of a tool shed (pine on concrete foundations) in 1953 and a home workshop (constructed of pine) in 1969 (Auckland Council Property files). Additions were carried out to the house in 1981 and the property appears to have undergone little change since.

In 1970 subdivision of land for 34 Sandspit Road (now Lot DP66360) to the west of Lot 1 39534 was carried out (Figure 12), with a small dwelling constructed and driveway added. The pre-1928 house appears to have been removed sometime between 1976 and 1982 based on aerial photography.

The property stays largely unchanged in the late 20th century (Figure 16). By 2017 a small building (sleep out) is evident near the centre of the property and the access road has been sealed. Several vehicles and small temporary structures are located around the turn circle, with possible beehives in the SE corner (Figure 17).

Overall, there is no clear evidence on the detailed layout of the Combes/Daldy lime works, how it developed chronologically over time or how/ when it was decommissioned, based on the desktop review.



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Figure 7. 1883 plan (DP 417), left of image showing the subject site with no features identified (arrowed) and right of image a detail of Warkworth township (Quickmaps ref AK DP417-S1)

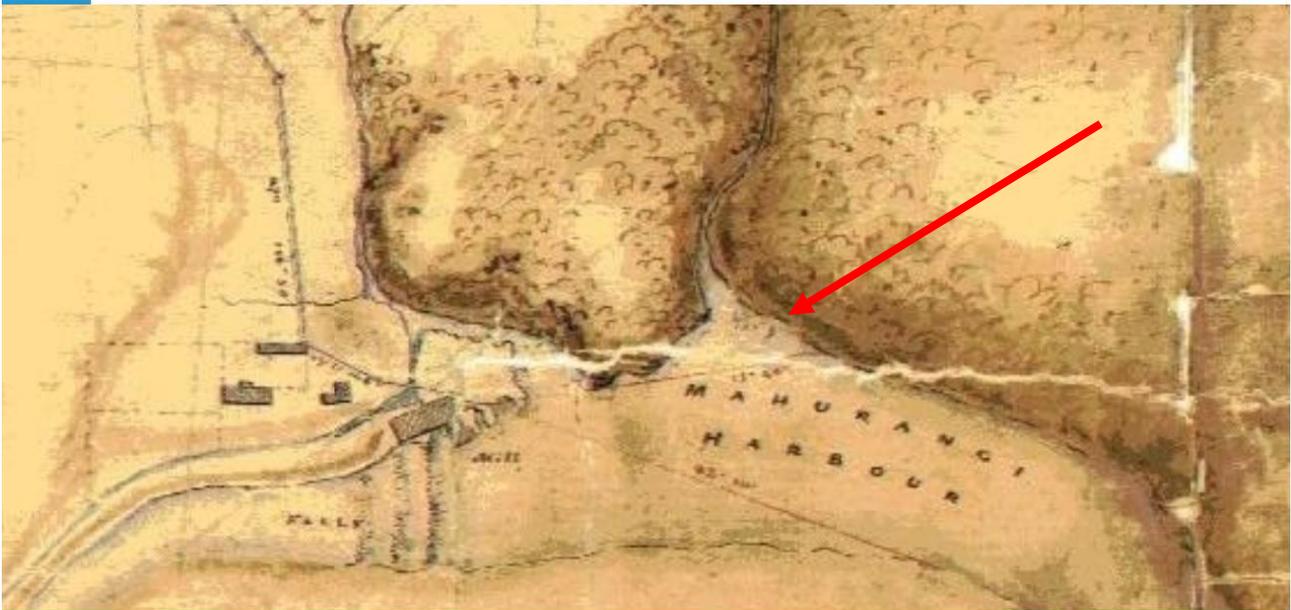


Figure 8. Part of 1885 Map, which shows the mill, buildings and falls, but does not show any features within the subject site (arrowed) (Quickmaps AkC-SO1433-S3)

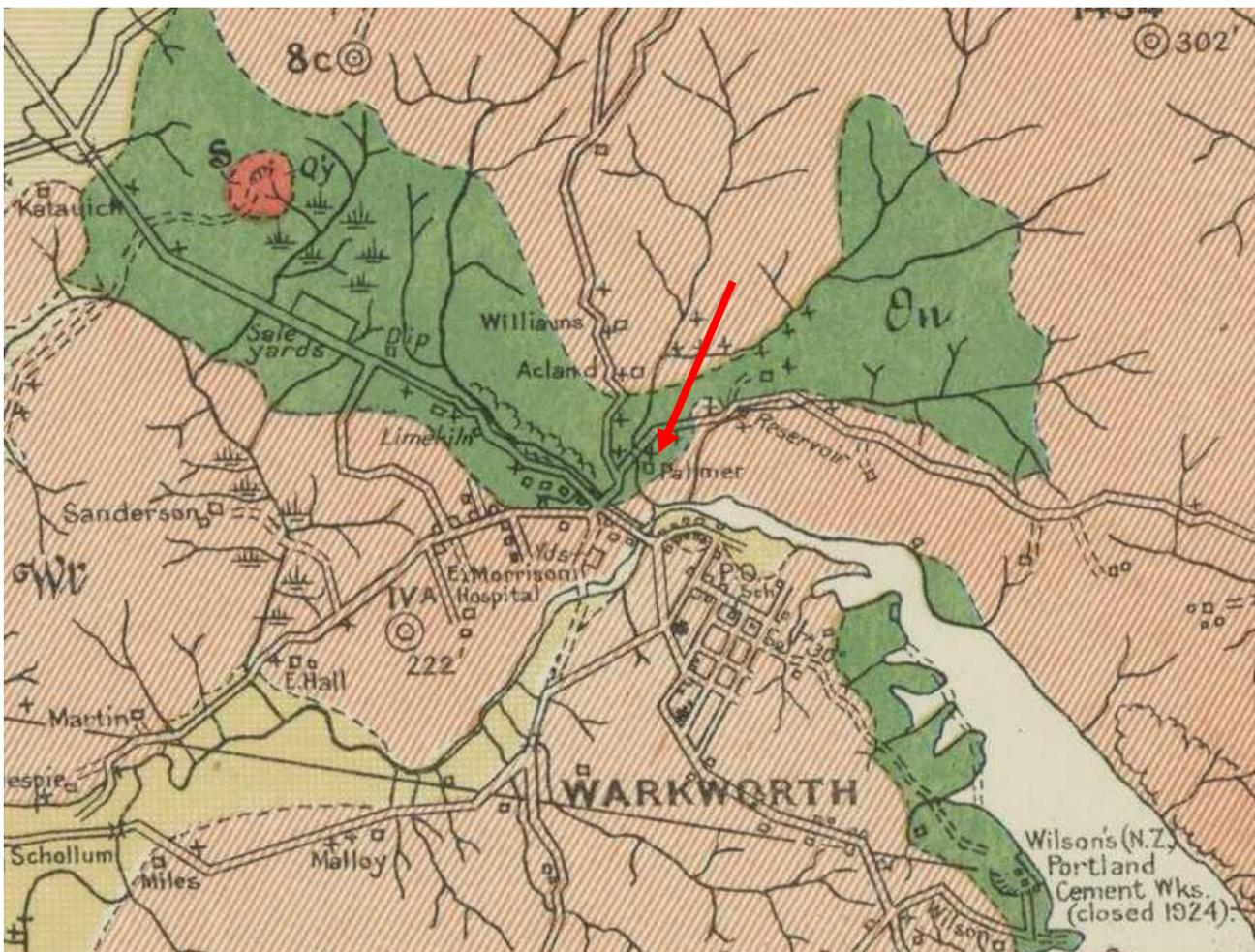
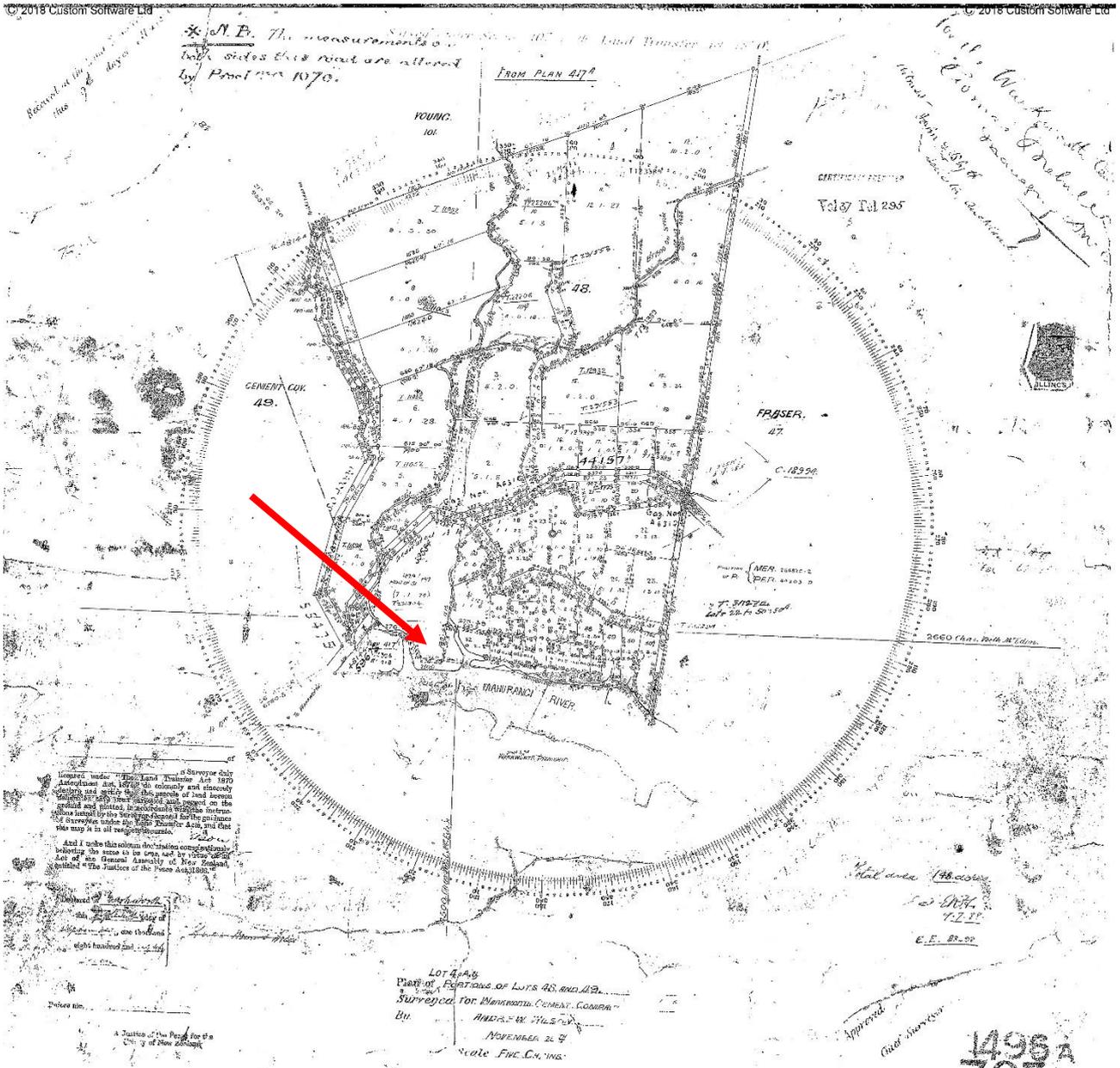
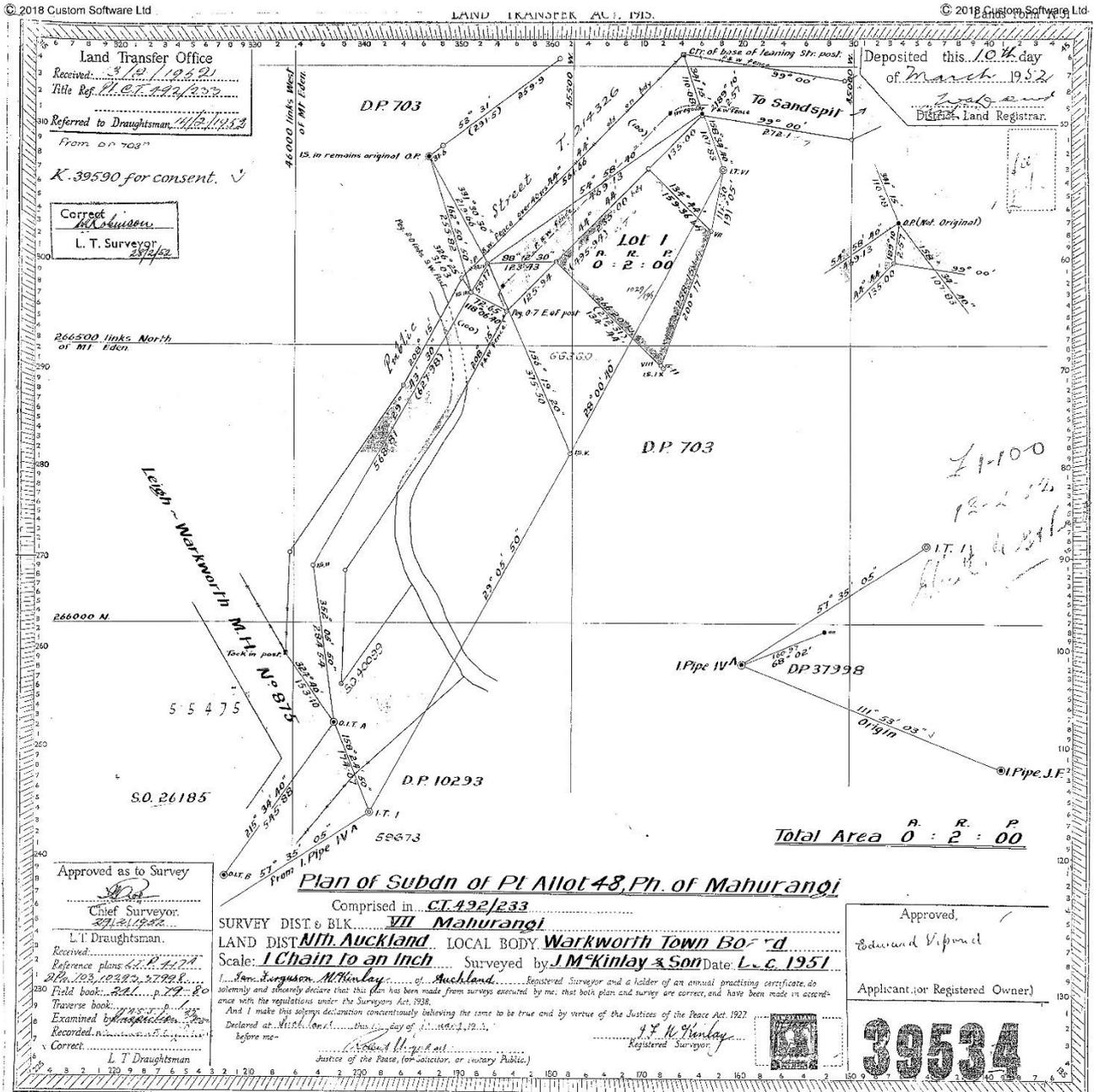


Figure 9. 1928 geological map of the area shows a dwelling "Palmer" within the subject site, located towards the northern end of the property (G.E. Harris and J.E. Hannah 1928 Geological Map of Mahurangi and Kawau survey)



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Figure 10. 1888 plan (DP703), showing the area north of Mahurangi river, with subject site arrowed and no features identified (Quickmaps ref Ak-DP703-S1)



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Figure 11. 1951 plan showing subdivision for construction of a residence at the north end of 36 Sandspit Road, now Lot 1 39534 (Quickmaps ref Ak-DP39534-S1)

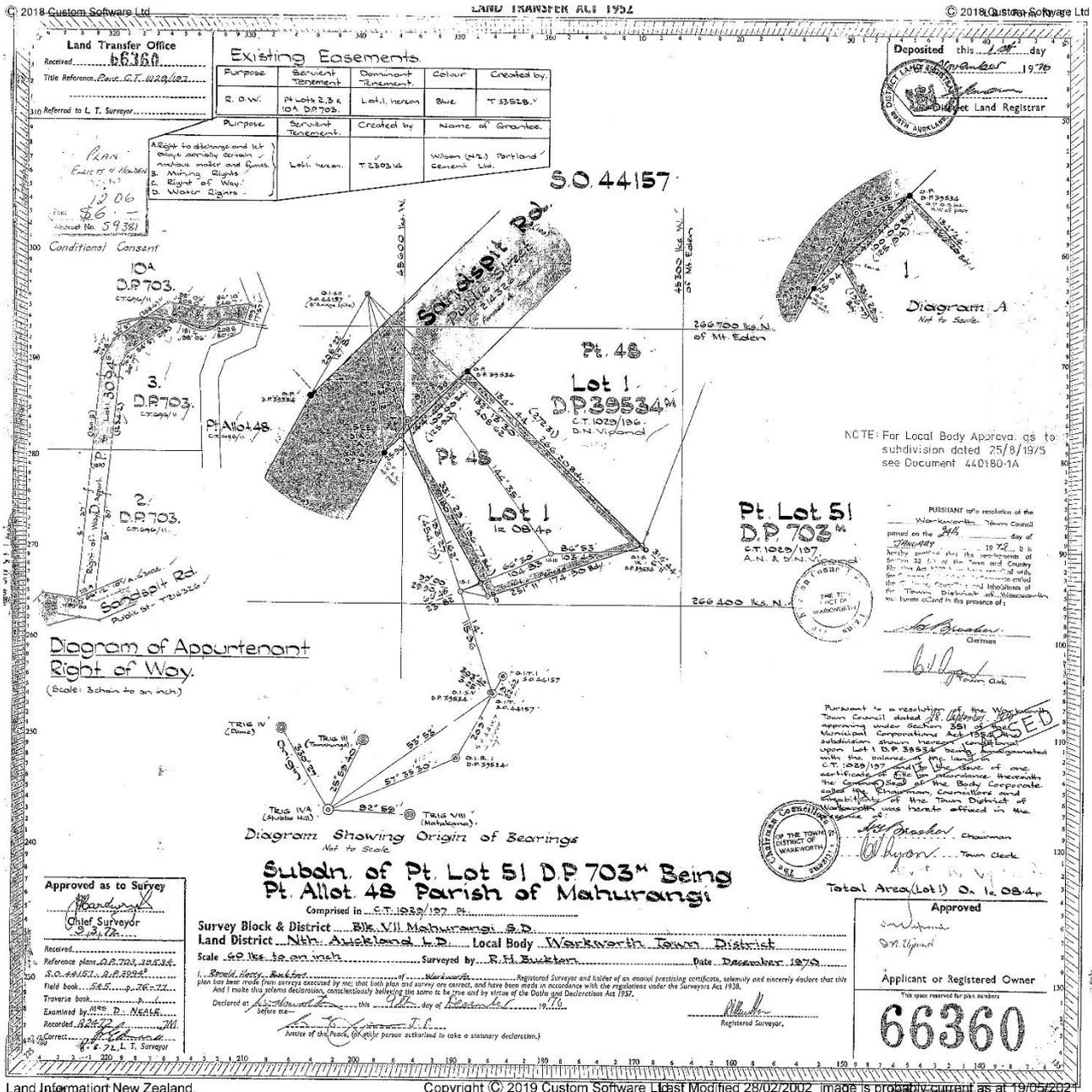


Figure 12. 1970 plan showing subdivision of land for 34 Sandspit Road, now Lot DP66360 (Quickmaps AK DP66360-S1)



Figure 13. Part of a 1931 aerial image of the subject site (courtesy of National Library NZ), showing the general lime works area (no additional visible remains) and a pre-1928 house (bottom right) (Geosciences 2021 Appendix B)

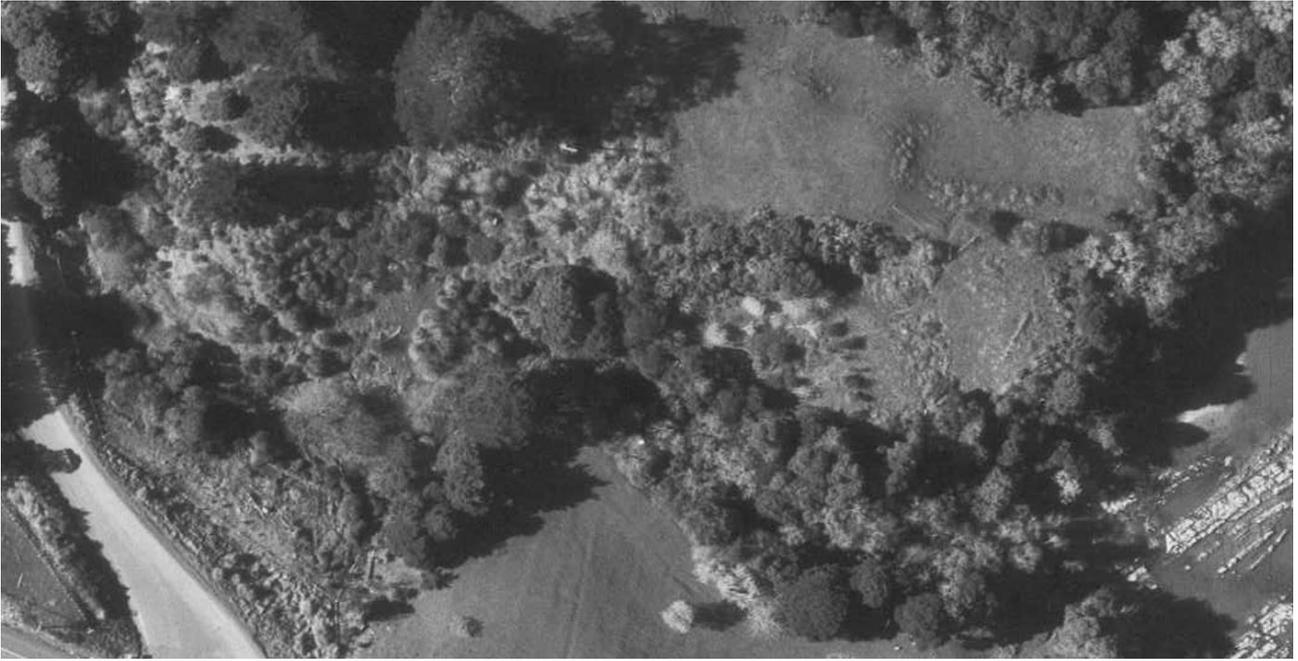


Figure 14. 1962 aerial photograph showing the southern area of the subject site, with no visible remains associated with the lime works buildings extant (Retrolens SN1404)

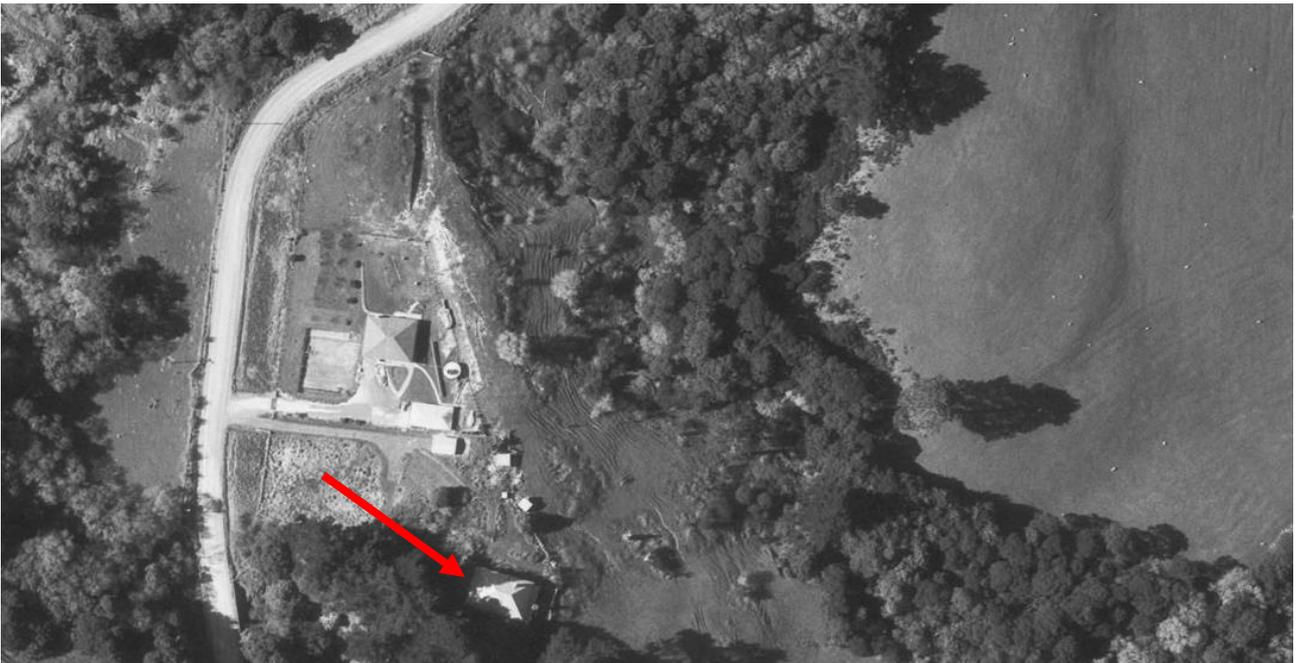


Figure 15. 1962 aerial photograph showing the northern area of the subject site, with the two dwellings (and ancillary structures) adjacent Sandspit Road. The pre-1925 building (now gone) is arrowed in red (Retrolens SN1404)



Figure 16. 2008 aerial photograph showing the two dwellings (and ancillary structures) adjacent Sandspit Road in the northern part of the site, and no visible remains associated with the lime works buildings extant in the southern part (Auckland Council geomaps)



Figure 17. 2017 aerial photograph showing a small building (sleep out) has been constructed near the centre of the property and the access road has been sealed. Several vehicles and small temporary structures are located around the turn circle, with possible beehives in the SE corner (Auckland Council Geomaps)

4 ARCHAEOLOGICAL BACKGROUND

Please note that this is a general archaeological background section. There is further detailed discussion on Auckland Council Plan Change 27 and the how this is of relevance to the proposed PPC for the Combes/ Daldy Lime works site Historic Heritage Overlay in Section 9.

4.1 Recorded Heritage Sites

The 19th century Combes/ Daldy Lime works is currently the only archaeological site recorded within the plan change area (R09/2240; CHI 1013) (Figure 18; Figure 20). The site is not included on the New Zealand Heritage List/Rārangī Kōrero (Figure 19). It is scheduled on the Auckland Council Auckland Unitary Plan Operative in Part as a category B historic heritage place (Schedule 14.1; ID 569):

- The verified legal description is Pt Lot 51 DP 703 and the CMA;
- An extent of place was introduced through Plan Change 27, which covers the southwestern portion of the plan change area, previously no extent of place had been identified⁵;
- The primary feature is described as “entire extent of place except quarry pit”;
- The heritage values identified in the schedule are A historical; B social; D knowledge; E technology; F physical attributes; and G aesthetic;
- Additional rules for archaeological sites or features applies to the place; and,
- There are no ‘excluded’ features defined (all other features in the overlay that are not ‘primary’ features default to non-primary features e.g., quarry pit).

The relevant planning maps are shown in Figure 21 and Figure 22.

In the immediate vicinity of the plan change area, a small shell midden deposit (R09/2267) has previously been recorded along the banks of the river, c.30m south of the plan change area.

4.2 Archaeological Landscape

Kawau Bay, the Mahurangi Harbour and Matakana River were shark breeding grounds and traditional fishing areas visited by many whanau/hapu during the summer months. Many temporary encampments were established around the bays and inlets taking advantage of these rich fishing grounds – hence the concentration of archaeological sites (predominantly midden sites) recorded around the coastal margins and along the riverbank. Produce was gathered and processed in volume – preserving supplies for the winter. Occasionally, small gardens were planted in advance of the fishing season. European settlement during the mid-late 1800s and early 1900s was also focussed on the harbour fringes and riverbanks, to take advantage of the trade network which was focussed along the deep river channel.

Archaeological sites previously recorded within the general project area comprise numerous shell midden sites focussed on the banks of the Mahurangi River, pits and terraces identified on the ridges and spurs overlooking the river, the remains of 19th and 20th century lime, cement and milling

⁵ This was signified by a purple dot on the AUP map, which mean the rules in D17 Historic Heritage Overlay apply to all land and water (including the foreshore and seabed) within 50 metres

industries and the remains of 19th and early 20th century European settlement located along the banks of the river and associated with the early industrial development of the Warkworth area. A study in 2018 of coastal trade on the Mahurangi River, identified eleven sites associated with the lime industry; spanning from 1849 until 1928 (Wooller 2018). These sites are shown in Figure 23. The general distribution shows that sites associated with the processing of limestone occur by the natural lime deposits near the head of the river and the shell lime works occur nearer the harbour.

It is evident that the subject site forms part of a wider industrial landscape in the Mahurangi River area. Several of the other lime industry sites have historical associations with the subject site, due to the individuals involved and provide context for the development of the industry (see historical background). Of the kilns that are still extant in the Warkworth area today, the kilns in the subject site are the most basic in construction but are likely to be the earliest. Five kilns for production of hydraulic and roche lime are located nearby in Kowhai Park. They were part of the Warkworth Cement Company that operated at this site from 1882-1889 (Auckland Star, 30 October 1882, 2). The site consists of a block of five kilns; comprising two earlier brick ones to the north, and a later group of three constructed with concrete.

The biggest lime operation on the river was that of the Wilson Cement Works. Combes and Daldy were the owners until at least 1878 (Ring 1878). In 1872 two vertical kilns were constructed (replaced subsequently by smaller kilns), producing both hydraulic and roche lime (Keys 1954: 81). By 1883 there were eighteen new kilns, fired by the coke from the Auckland Gas Company (Thornton 1982: 124). Today, the existing remains of the Wilson Cement Works cover an area of approximately 3 hectares and include structural remains of many features including kilns, crushers, ball mills, boilers, elevators, offices and laboratories, engineering sheds, coal mills, wharves, waterfront retaining walls, tailings heaps and a flooded open cast mine (Brown and Clough 2017). In the late 19th century John Wilson and Company expanded further, buying out the sites and lime reserves of many of their competitors, including the adjacent site of Pulham and Bannatyne's lime works (Locker 2001: 281), as well as the properties upstream containing the kowhai lime kilns, and the Combes/Daldy lime works within the subject site (Keys 1954: 160).

Nationally, Geoffrey Thornton's book on New Zealand's Industrial Heritage, states that there are very few existing examples of the early kilns (Thornton 1982: 122). The earliest use of lime kilns was probably in Nelson district, with three kilns in use in 1843 (ibid). Thornton gives several South Island examples, including some impressive kilns constructed in 1865 of stone, but the only North Island examples are the ones at Warkworth and Raglan.

4.3 Previous investigations

The Combes/ Daldy lime works site was originally recorded by Leigh Johnson in 1993 at which point three kilns had been identified dug into the limestone on the northern banks of the Mahurangi River, opposite the Warkworth Township (CHI record).

A site inspection was undertaken by Wooller in 2018, who described visible remains associated with the site. A site visit and further information concerning the history of the site was added to the site records by Robert Brassey in 2018 (CHI record & NZAA SRF). This information was published in the *Auckland Council Historic Heritage Topic Report: Warkworth Structure Plan* (Brassey and Walker 2018). Auckland Council Plan Change 27 (to Heritage Schedules, Historic Heritage Overlay Extent of Place), was notified on 30/05/2019. This proposed the current extent of place for the Combes/ Daldy

Lime works (Figure 22) and included updates to Schedule 14.1, which is discussed further in Section 9.

The coastal section of the site was inspected by Charlotte Judge as part of a field survey undertaken in 2019 for a proposed walkway/ cycleway connection between Warkworth and Snells Beach (Figure 24). At the same time a Condition Survey was undertaken for the lime kilns was undertaken by Salmond Reed Architects, which included recommendations on public access and interpretation for the walkway/ cycleway project (Salmond Reed Architects 2020). This included some mapping and photographs of the kilns (Figure 25; Figure 26).

In summary, the above previous investigations to date have identified the following visible remains thought to be associated with the 19th century Combes/ Daldy Lime works:

- Three kilns cut into the riverbank with open vertical shafts cut into the clay/rock, with the heads of the shafts evident on the elevated flat c.6m above;
- a broad flat terrace located below the kilns and sitting immediately adjacent to and just above the high tide mark of the river;
- The remains of a landing site/ timber wharf located within the riverbank;
- a track running north from the river terrace up the slope to the remainder of the site;
- a flat area located north of the vertical chimney shaft holes where the sheds etc. may have been located; and,
- a section of the cutting for the narrow-gauge tramway that ran from the quarry to the kilns.

Reportedly there was also a storage shed located close to the river during Palmers ownership of the lime works (Locker 2001:279), but no remains have been identified onsite.

General observations are made on the condition of the kilns in the Salmond Reed Condition Report (2020), which states "The kilns are in good condition when considering the lack of intervention there has been" (2020:11). It is noted however that the report made several recommendations to assess the condition of the kilns more fully, including:

- Clearing debris out of kilns;
- 3D scanning of kilns;
- Geotech engineer report on condition of kilns;
- Condition monitoring of kilns;
- Monitoring of moisture levels; and,
- Removal of non-native vegetation.

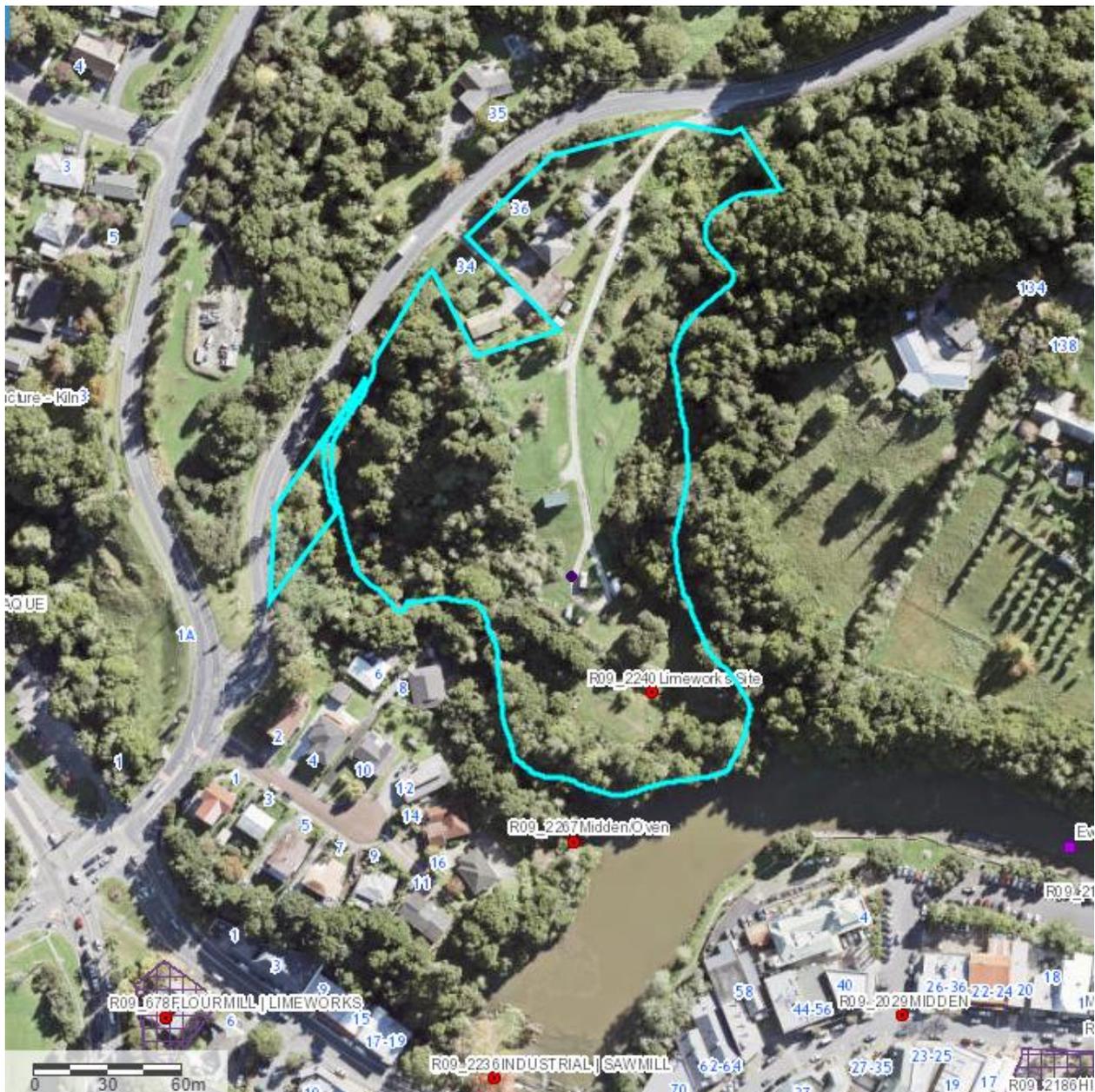
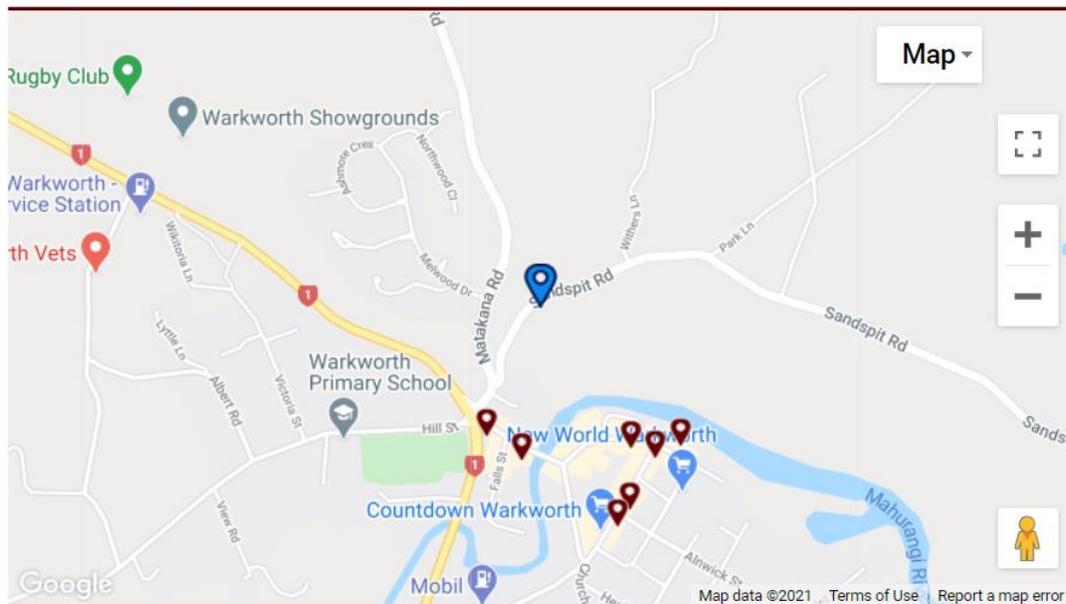


Figure 18. Auckland Council Geomaps Viewer, showing the subject site (outlined in blue) and Auckland Council recorded CHI sites. The recorded historic heritage sites are shown as red circles (archaeological sites) and blue squares (built heritage). (Auckland Council Geomaps, accessed May 2021)



Key

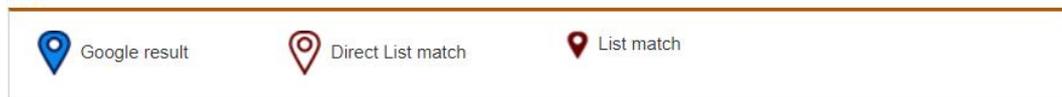


Figure 19. HNZ New Zealand Heritage List/ Rārangī Kōrero sites (excluding historic areas) in the vicinity of the subject site (blue icon). Listed properties have a brown icon/ none are identified within the plan change area (HNZ New Zealand Heritage List, Accessed May 2021)



Figure 20. Archaeological sites recorded on the NZAA ArchSite Database within the property (R09/2240) and vicinity of the subject site. Blue stars are confirmed and Red stars are pending confirmation. (NZAA Archsite, accessed May 2021)



Figure 21. Auckland Unitary Plan Operative in Part Geomaps, with the subject site outlined in blue and purple dot for ID 569 arrowed, as shown on the AUP Maps. Historic heritage places that are scheduled in the AUP are shown as purple dots and purple hatching (Auckland Council AUP Geomaps, accessed May 2021)



Figure 22. Extent of place for ID 569 (highlighted red), as introduced through Plan Change 27 (Auckland Council AUP Geomaps, accessed May 2021)



Figure 23. Map of the Mahurangi showing sites associated with the lime industry (Wooller 2018: 44)



Figure 24. Plan of the site from the— Proposed Walkway and Cycleway project (Judge 2019 – note that a more recent geotechnical report has assessed this terrace as a natural formation⁶)

⁶ Geosciences September 2021 Geotechnical Investigation Report: Appendix A and section 5.3

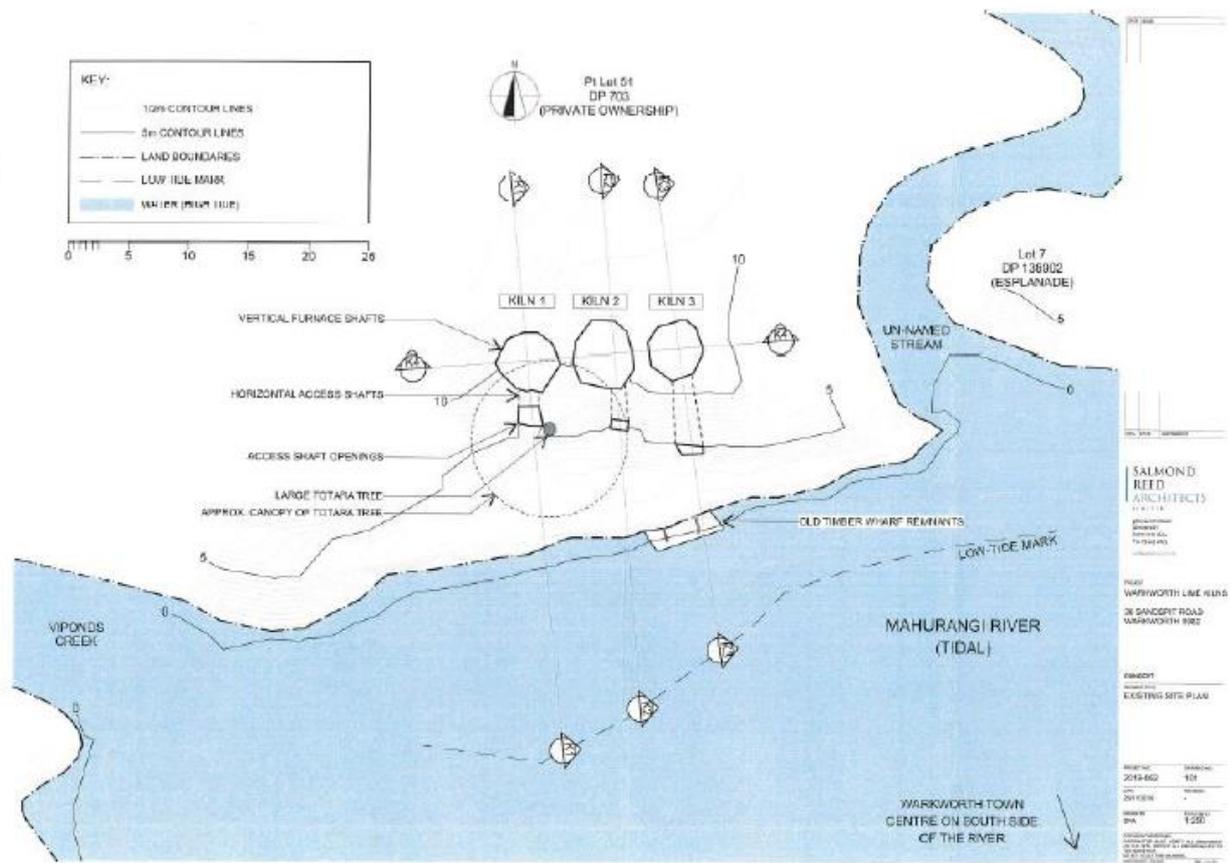


Figure 25. Existing site plan of the kilns (Salmond Reed 2020)

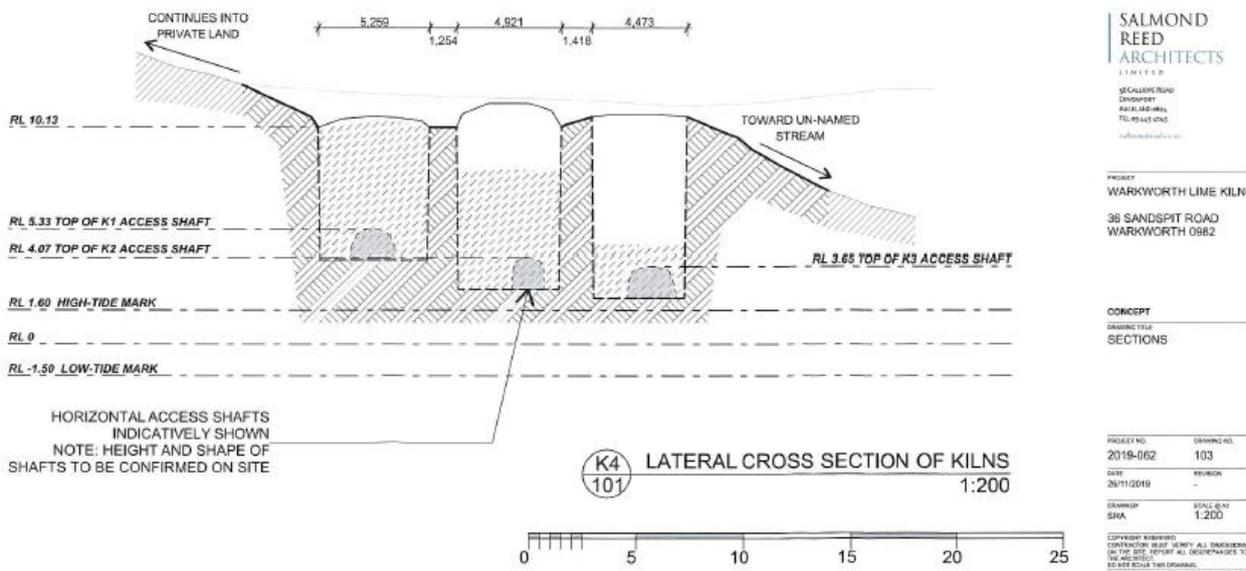


Figure 26. Lateral cross section plan of the kilns (Salmond Reed 2020)

5 SITE SURVEY

5.1 Fieldwork undertaken

36 Sandspit Road, Warkworth, was visited by archaeologists Adina Brown, Charlotte Judge and John Brown on several occasions between February and December 2021. These were largely visual inspections, with limited (unsystematic) probing and testpits in selected areas (see Section 5.7).

A detailed site survey for the Combes/ Daldy lime works site (NZAA R09/2240/ AUP 569) was undertaken on 6th April 2021 in good weather conditions. All visible physical archaeological features within the plan change area were identified and mapped (Figure 29-Figure 31). This was done in conjunction with Buckton Surveyors. The survey was completed using total station and RTK GPS. Where there is thick vegetation, the total station was used, in the open grassy areas the RTK GPS could be used. The site was also flown with a UAV and a spatially accurate orthophoto was created. This provided additional detail and acted as a check on the total station and RTK GPS information. Photographs were taken to record the visible remains associated with the Combes/ Daldy lime works site, the immediate surrounds/ extent of place, and locations for exploratory investigation.

A site visit with Courtney Shaw (Ngāti Manuhiri Settlement Trust) was also carried out on 20th May 2021, and a further site visit was undertaken with Dr Matthew Felgate on 16 November 2021, following lodgement of the PPC.

5.2 General location and physical environment

The plan change area is located on the north side of the Mahurangi River, opposite the Warkworth town centre. Following the cessation of 19th-century industrial use at the southern end of the property, the property has been in rural residential land use since at least 1931. This most likely started around the turn of the century when a house was constructed at the northern end of the property.

The property occupies a spur running roughly north-south down to the river edge. The spur is situated between the second and third tributary streams east of the Warkworth Bridge, on the north side of the river. The northern portion of the property occupies the high ground, up to around 26m asl (Figure 31). This shallow ridge then slopes down moderately to the south in the central portion of the property, reaching a flatter area of terraced ground in the southern part of the property. There is a steep southern drop to the Mahurangi River. The site also falls rapidly to the east and west, towards the gullies occupied by an unnamed stream (east) and Viponds Creek (west).

Most of the Mahurangi district is underlain by the rocks of the Waitemata Group; which consists of sedimentary sandstones and mudstones. The local geology is described as alternating thick-bedded, volcanic-rich, graded sandstone, siltstone, and turbidite of the Pakiri Formation of the Warkworth Subgroup to the north and south of the property⁷. Micritic muddy limestone, calcareous mudstone and glauconitic sandstone as part of the Mahurangi Limestone (Motatau Complex) in the Northland Allochthon traversing the middle of the property⁸. Figure 27 shows the extent of Mahurangi Limestone formation and natural scarps/ debris lobes within the PPC area.

⁷ Geosciences (Revised 7 May 2021:2)

⁸ Ibid

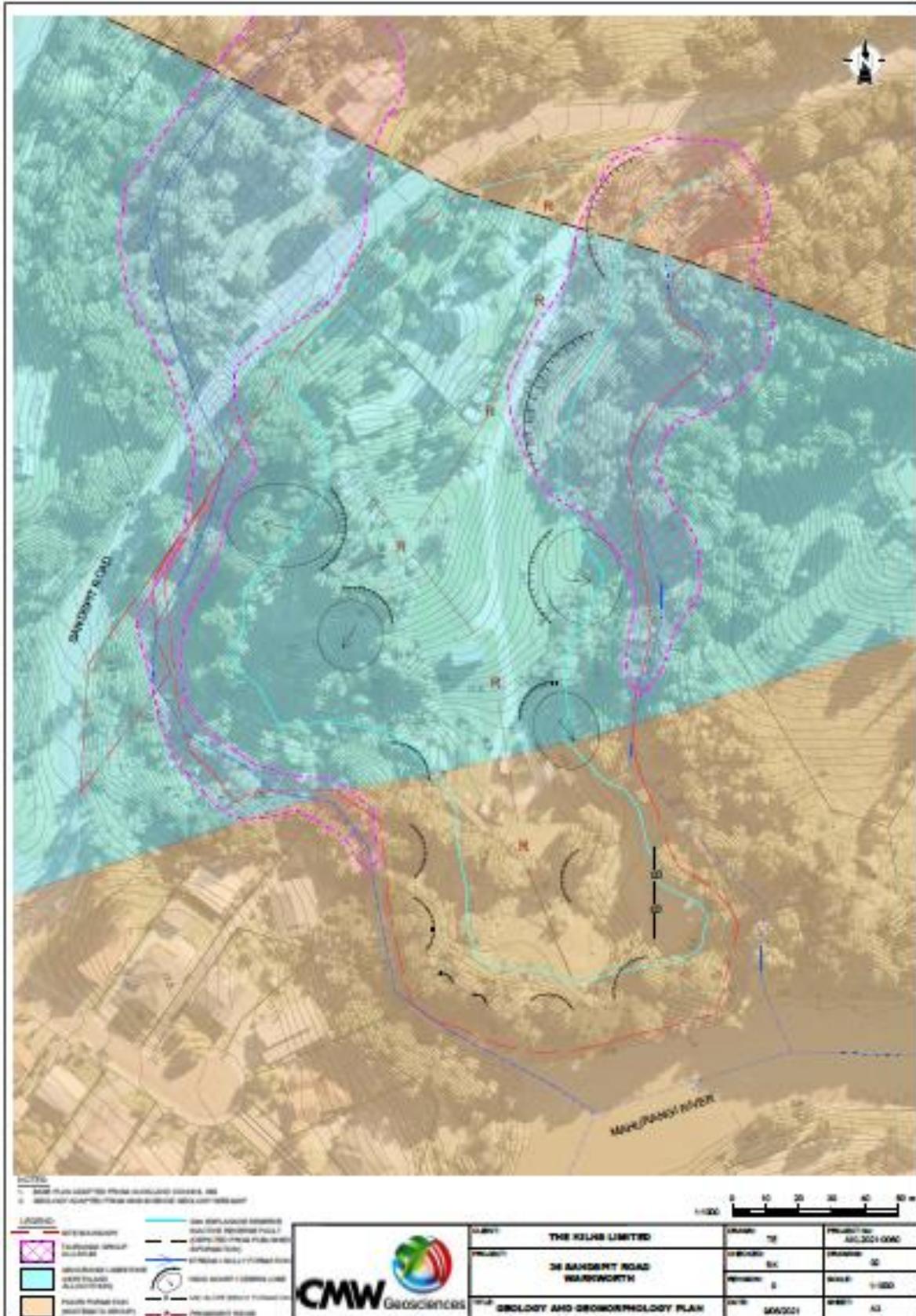


Figure 27. Geosciences Geotechnical investigation report 8 September 2021 – Appendix A, plan showing assessed extent of Mahurangi Limestone formation (blue) and natural scarps/ debris lobes across the site (blue shading)

Further detail on the geology of the subdivision area is provided in the CMW Geosciences Geotechnical Report and subsequent update (September 8 2021; March 2022):

- Pakiri Formation rocks typically weather to pink, red or orange, soft to very stiff clays, clay/silt mixtures and sandy clays. The weathered zone will typically be 3m to 15m deep, although a residual soil thickness of 1m to 2m is common on steeper slopes. The weathering profile is often dependent on the underlying structure and can have a sharp transition between residual soils and weathered rock masses. Cut slope failures are common where sharp transitions are exposed and adversely orientated to the cut face.
- Mahurangi Limestone is generally older than Pakiri Formation, however, it has been thrust over the top of the younger Pakiri Formation as a result of past tectonic activity, forming the Northland Allochthon. Mahurangi Limestone is generally comprised of blue-grey to white micritic, coccolith foraminiferal, muddy limestone, with some local glauconitic sandstone beds. Mahurangi Limestone is also very commonly shattered, with abundant shear features present throughout the unit. Crystalline limestone is very rare in this formation.
- Some recent alluvial river deposits were encountered during this investigation, which were not included in the published geology for the site. The alluvium encountered is interpreted to be recent Holocene Tauranga Group (Q1a) river deposits, which flank the streams/gullies to the east and west of the site. These alluvial soil deposits generally comprise sands, silts, muds and clays, with local gravel and peat beds. These deposits are also found to the southeast of the site, along the banks of the Mahurangi River.

5.3 Site layout

Vehicular access to the property is via Sandspit Road to the north, with two concrete driveways servicing the two dwellings at 34 and 36 Sandspit Road. Another driveway provides access to the rear of 36 Sandspit Road (accessed at the NE corner of the property), which has been sealed and leads down the slope to a turning circle near the southern end of the property (Figure 32).

The northern part of the property is occupied by the 1950s dwelling and ancillary buildings at 36 Sandspit Road. To the southwest is the 1970s dwelling at 34 Sandspit Road. To the southeast of these dwellings is the highest part of the site and the building platform for the former pre-1928 house is still evident (Figure 32). A concrete water tank is extant and the former alignment of the fencing to the northwest side of the dwelling is discernible, but no other visible remains associated with this house were immediately evident. The more substantial vegetation in this area has recently been cleared, but still partially overgrown by weeds and tall grass. Within patches of disturbed ground, no midden was observed, and no features associated with the lime works were observed.

The land drops down moderately to the south and east in the central portion of the site (Figure 32). The small 'sleep out' (c. 2010 – 2017) is located part way down the slope, with the turning circle below it to the southeast. Apart from the residences, the main part of the property is in grass, with scrub and bush largely contained to the outer margins lining the streams. There is a larger area of scrub and bush occupying the central NW portion of the site, which is where the land drops away moderately- steeply to the west and southwest.

The southern portion of the property is at the bottom of the slope and therefore flatter, with three separate areas/ terraces, transected into north and south areas by the former lime works tramline

cutting. This part of the property is where visible surface features associated with the 19th century lime works are evident, which would have been accessible to the Mahurangi river for transportation of products (lime) and unloading of fuel for the kilns (see details below).

5.4 Archaeological features

No pre-European archaeological sites are recorded within the Project area and no new sites of Māori origin were identified during the fieldwork. Given the location next to the river/ streams and that a midden site (R09/2267) is recorded reasonably close by, unknown pre-European archaeological sites cannot be discounted, particularly around the river/ stream margins.

The following archaeological features associated with the Combes/ Daldy lime works were relocated during the visual field survey:

- Three kilns and associated working terrace cut into the cliff face adjacent to the riverbank;
- Broad flat working terrace located below the kilns, adjacent the river;
- Timber and concrete landing remains located within the riverbank;
- Historical access track running north from the river terrace up the slope to the remainder of the site;
- Cutting for the tramway that apparently ran from the direction of the quarry to the kilns;
- Suspected flat areas located to the north of the kilns, that may have been working areas or building platforms associated with the lime works; and,
- Possible locations for the limestone quarry, but no evident features.

The following additional features were recorded, which are not all confirmed to be part of the lime works:

- One small possible kiln opening within the cutting for the tramway on the north side;
- Concrete weir in stream to the east of the subject site; and
- Cast iron pipes (possibly water pipes) within the cutting for the tramway and crossing it.

These features are described briefly below and shown in the survey plan in Figure 29 and Figure 30 (also see Appendix 3).

In the northern part of the property a former house site (pre-1928 in date) was identified during the desktop research, as shown in Figure 31 (See Section 3.4 above). Investigation of this site has been included as part of an exploratory archaeological investigation granted by Heritage NZ (See Section 7 below). This former house site is not within the Combes/ Daldy lime works Historic Heritage Overlay or included on Schedule 14.1.

5.5 Kilns, terrace, wharf and track

The southern portion of the Combes/ Daldy lime works site containing the kilns and landing area is well understood, having been visually inspected on several occasions by various specialists and being the original extent of the scheduled site under the Rodney District Plan (Section 4). Topographic survey of the kilns and a photographic record have already been made by Salmond Reed Architects (Section 4).

Within the southeast portion of the property are the three kiln heads, largely hidden in bush and very close to the steep riverbank (Figure 33). A track has been cut along the SW margin of the property to gain access down to the formed platform adjacent the river, where remnants of a wharf still survive. The base of the three kilns with vents/draw holes, are located adjacent to the riverbank. Two of the kilns have been backfilled and the vents are barely visible from the platform due to a build-up of debris, but the interior draw hole is visible when up close. The third kiln that remains open is more visible, with part of the vent opening/draw hole visible from the platform.

Early maps in 1864 show two kilns, but there are now three kilns, which implies an additional kiln was added after that time. The earliest kilns may be the two western kilns (Kilns 1 and 2), with the third most eastern kiln (Kiln 3) added after 1864. This hypothesis is based on the alignment of the tramway (discussed below) and also supported by the fact that kilns 1 and 2 have been backfilled, with kiln 3 remaining clear/ operational. The head of kiln 1 is in the worst condition and most full of vegetation, and the vent is most obscured by debris, suggesting it is the oldest. However, it is unknown if all kilns were operating at the same time, or if each kiln was replaced as it became redundant.

Early kilns could be operated on a semi-continuous basis, with alternate layers of limestone and fuel fed to the top and quicklime drawn out from the base (probably in batches). In 1862 it was reported the lime kilns could burn 800 to 900 bushels at a time (Daily Southern Cross 22 May 1862:3), which equates to 20 – 23 metric tonnes. It is noted that the kilns have not been fully lined (simply dug into the bedrock) and therefore they may have suffered the effects of repeated firing. It is noted there is evidence for some use of firebricks in Kiln 1 (where a brick wall and lintel has been constructed), which may have been an attempt to extend the life of the kiln/ make the draw hole safer.

It was observed the draw hole is deeper and wider in Kiln 3, than the other two. The opening at the base is important in order to increase the draft through the kiln, so this may have been an adaptation to maximise air flow. Alternatively, it might represent a change in fuel. In the kiln the limestone and fuel were stacked in layers and the fuel at the base ignited. The fuels commonly used in the 19th century were coke; coal and charcoal. Some reports have suggested wood was also used as the fuel (Locker 2001: 276; Wooller 2018: 43), however this would have been extremely difficult given the temperatures that are required to successfully make lime⁹. At this site coke or coal is most likely to have been shipped in to fuel the kilns, but this is yet to be confirmed. Coal can be difficult to use in a kiln and it was much more wasteful than coke in this situation, due to its chemical composition. Sometimes 'coal chutes' were constructed part way down the furnace shaft, so coal could be added directly into the hot part of the kiln, however there is no evidence for chutes within kiln 3 (where the vertical shaft is still visible). The use of coke in kilns locally was documented in 1883, where the kilns at Wilson Cement works were fired by the coke from the Auckland Gas Company¹⁰ (Thornton 1982: 124).

⁹ A temperature of between 800 and 900 degrees Celsius is a primary requirement and the residence time must be sufficient for that temperature to be reached in the centre of each piece of limestone feed rock. The particle size range of both the limestone and fuel was important, as well as the quality of the limestone.

¹⁰ operating from 1865

Because this part of the site has clearly identified archaeological features present (kilns, foreshore terrace, wharf and track) this land has been retained within all of the PPC Historic Heritage Overlay proposed amendment options.

5.6 Tramline cut

The 1862 article refers to a tramway, 20 rods in length at this time (Figure 3). 20 rods in length is approximately 330 feet/ just over 100m, which is the approximate length of the tramline cut that is discernible on the ground today (Figure 34).

The northern end of the tramline cut is well preserved, with the cut visible into the bedrock on both sides. It is approximately 2.5m deep in the centre and gets deeper/ slopes down to the north. The width of the base is 2m wide, with the flattest portion being 1m wide. It is unknown what the width of the trucks were and therefore if it was single or double gauge. It seems likely it would have been narrow gauge, rather than the standard gauge. The tramway cutting stops at what has been assumed to have been the quarry and the profile at this end (looking south) shows the 'bund' on the west side of the cut, which would have formed from the spoil of the tramline cut. The tramline cut has become overgrown, with vegetation growing within the cut itself (including old punga trees). A shelter belt has been planted along the western edge of the bund and weeds/shrubs have grown along the eastern edge. Consequently, the tramline cut is not very visible in the landscape and the tree roots will be damaging the structure.

The south-eastern end of the tramline cut is less discernible on the ground. It is now apparent that a portion of the tramline has subsequently been modified, to gain access to the southern portion of the site and this area is currently used for vehicle access . This access may however been present historically as presumably when the lime works was in operation, workers also needed to access this side of the tramline to get to the river landing/ kiln vents etc via the pathway on the southern edge of the site.

A small section of the southern terminus of the tramline cut appears to survive, which is in amongst the bush/ overgrown. Today it is not a distinctive linear cut, but more of a 'wedge shape', with a small cut to the west surviving. In the past it is possible the tramway curved slightly (following the original topography and contours partly evident today) to line up with the top of the westernmost kiln (kiln 1). If the other kilns were added over time, this terminus would likely have been modified to provide a better alignment to the new kilns, further to the east. This may be supported by reports in 1862 that stated, "the trucks are emptied into the orifice of the kiln, thus economising time and labour" (Daily Southern Cross 22 May 1862:3). Regardless, extra space would have been needed at the terminus to facilitate the unloading of the trucks. It is noted that the suspected end of the tramline is some distance from kiln 3 and it would not have been possible to unload the rock from the trucks directly into kiln 3. Due to the steep topography, they could not have extended the tramline at this end, without some sort of a bridging, ramp, chute, or pulley system. Otherwise, kilns 2 and 3 would have had to partly been fed manually. Alternatively, these could have been accessed via the flat area of ground to the north, either by another tramway section, or by a different means.

One small kiln vent/draw hole was located within the eastern side of the cutting for the tramway, which is partly filled with debris (Figure 34). The visible opening of the vent is c. 40cm high and 50cm wide, approximately 2m deep. No kiln head was located, suggesting it may not have been

finished, or has been backfilled and is now longer visible. This area is now covered in vegetation. It is yet to be confirmed if the tramline has been cut into limestone rock or sandstone/ siltstone¹¹. The cut for the tramline is quite an undertaking, so it is plausible that this material was quarried and burned for lime as the track was cut. Given the tramline was already 100m in length by 1862, the lime works could have been operating earlier than announced in the newspaper. The presence of this small kiln part-way down the tramline perhaps supports some earlier experimentation/testing of the rock.

Two cast-iron pipes (largest 4 inches diameter) were found within the cutting for the tramway, approximately 50cm deep (Figure 34). These possibly run NE/SW through the southern part of the site, but the exact alignment is yet to be confirmed. They are most likely water pipes and could be late 19th/ early 20th century in origin. Their date and association with the lime works is yet to be established, and this may be revealed if they can be traced back to the source (see section 5.9 below).

The tramline alignment is clearly visible at the northern end and a confirmed archaeological feature; therefore, it has been retained within the PPC Historic Heritage Overlay amendment. The southern section where the tramline may have been modified for a farm road or track is less discernible. This area could undergo future archaeological investigation to see if it survives in this part of the site, and if anything remains of the tramline itself.

Because this part of the site has clearly identified archaeological features present, the entire tramline alignment has been included in all PPC Historic Heritage Overlay proposed amendment options.

5.7 Flat areas

In the southern end of the property there are three flat/ terraced areas, separated from each other by a natural break in slope (Figure 35). For the purposes of this assessment these have been labelled areas A, B and C, in Figure 37.

Area A is west of the tramway cut. It includes a flat area of land, with gentle slope to the north and is accessed across the tramway cut via a farm road. This area is traversed to access the walkway down to the river landing and kiln vents. It is largely in grass, with vegetation to the outer margins and clear of structures. Approximately 1394.9 Sq Meters in area.

Area B is east of the tramway cut, sitting lower than area A and at the same level as the kiln heads. It includes a flat area of land, to the south of a tree clad bank and east of a bank formerly in low shrubs (now removed) which was on the tramline alignment. The area is largely in grass, with vegetation at the outer margins and clear of structures. Approximately 944.0 Sq Meters in area.

Area C includes a flat area of land, at the base of the hill that extends up to the ridge in the north. There is a small bank dropping down to the east and south of this area. It is bounded to the west by the tramway cut and assumed quarry. This area has been modified in the 20th century for the road/ turn circle and formerly had small modern structures (as shown in aerials), with some evidence

¹¹ Limestone is a sedimentary rock with more than 50% calcium carbonate

for recent ground disturbance (small spoil piles to outer perimeter of flat area). The area is largely in grass and it is now clear of structures. Approximately 1338.9 Sq. Meters in area.

Two of these areas are fully included in the current Historic Heritage Overlay extent of place (Areas A and B), and one of these (Area C) is further north/ only included in part. Given their proximity to the kilns and tramline, these areas have potential to contain subsurface remains associated with the lime works. Archaeological sites of this nature may have subsurface remains such as working floors, foundations for buildings (sheds, lime stores, workers huts etc), railway lines, fuel deposits, rubbish deposits, latrines, artefacts etc. Initial probing (intermittent in each area) and small test pits (2 in each area) did not reveal any subsurface remains in these areas.

As set out in Section 3 and based on the desktop review, there is no clear historical evidence on the detailed layout of the Combes/Daldy lime works, how it developed chronologically over time or how and when it was decommissioned. Furthermore, the field survey has demonstrated there is nothing visible at the surface in these areas. The location and extent of any possible subsurface remains associated with R09/2240 cannot be confirmed without further archaeological investigation.

An authority has been granted by Heritage NZ (Authority no. 2021/753) to carry out exploratory archaeological investigation in Areas A, B and C to determine the likely extent and nature of subsurface remains extant within the property. Geophysical investigation has been undertaken to inform the location of investigation trenches to ground-truth results.

The Resource Consent (LUC60378963), lodged on 31 May 2021, is technically on Section 92 hold. However, Auckland Council have stated that they do not support the proposed investigation and will not allow any subsurface testing within the Overlay (Areas A and B) to confirm if any archaeological features are present (see Section 7). Therefore, based on existing information these areas of land have not been confirmed to be part of the physical extent of the scheduled site. The PPC Historic Heritage Overlay proposed amendments therefore consider different options for this land, which retain all, some or none of these areas with no confirmed archaeological evidence.

5.8 Possible 'Quarry Pit'

A general quarry area was identified as part of PC 27 and subsequently a large area was included within the extent of place for the scheduled historic heritage place. This is the north-western area of the extent of place, incorporating most of the bush-clad south-west facing slope near the centre of the property. The 'quarry pit' has never been identified precisely (see figure 24), as it is not shown on any of the historical maps, plans or aerial photography. There is a historical reference that states the limekilns were connected to a quarry by a tramway (Daily Southern Cross 22 May 1862:3). We have been able to map the extent of the tramway, which terminates in the vicinity of the general area interpreted as the quarry. No distance is given relative to the tramway, so it is not clear how far away the quarry face was or its size.

During the site visit it was observed that there is a remnant river terrace or path to the stream edge (evident on topographical maps) at the base of the slope (Figure 36). The slope itself is covered in what appears to be generally loose colluvium caused by rain and downslope creep, as is typical on hillslopes. This interpretation is supported by the cross-section provided by GeoSciences (September 2021: Appendix A), shown in Figure 28.

No limestone outcrops or working faces were visible in this area to enable accurate identification of the quarry location. The area immediately to the north of the tramline potentially may have been modified and some possible breaks in slope are discernible (Figure 36). This is however within a small gully (evident on topographical maps) draining down to the stream, so could equally be naturally formed. It is noted the Geosciences geotechnical investigation and assessment has identified a number of scarps and associated debris lobes forming as a result of natural erosion processes (September 2021, Section 5.3), shown in Figure 27.

Although it is suspected the quarry was within the general vicinity of the subject site, there are no confirmed archaeological remains or visible evidence for anthropogenic activities (modifying what is essentially a natural landform) to define this feature. Further physical investigation would be necessary to enable the location or extent of the 'quarry pit' to be mapped accurately or with any certainty. This is possibly why Schedule 15.1 specifically excluded the 'quarry pit' as being a primary feature. The Resource Consent (LUC60378963), lodged on 31 May 2021, included a proposal to investigate the undefined quarry area (see Section 7) and the CMW Geosciences report have confirmed that subsurface testing is needed in this area (September 2021). However, due to Health and Safety concerns, machine trenching was not undertaken, and hand auguring was employed instead (CMW Geosciences update 2022)

Due to a lack of physical evidence of this area to the heritage values of the site, the possible quarry area is proposed to be removed or modified from the Historic Heritage Overlay through some of the PPC Historic Heritage Overlay amendment options. This is discussed in Section 10.

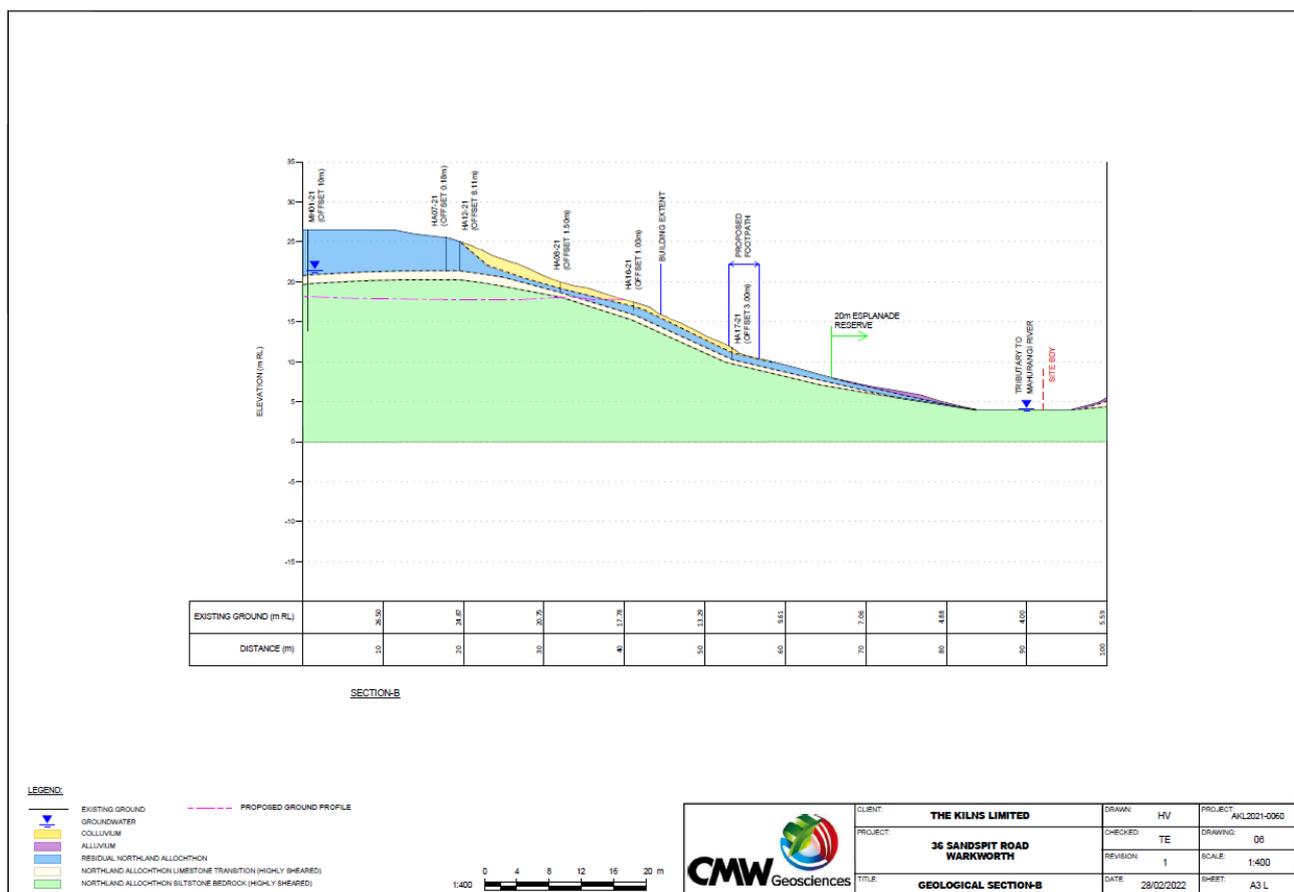


Figure 28. Geosciences March 2022. Cross-section B illustrating colluvium deposits (yellow) and residual soils (blue) above Weathered limestone (cream)

5.9 Concrete weir

During the survey a weir was located in the unnamed stream to the east of the plan change area (Figure 36). It is constructed from an early composition Portland-cement based concrete (with coarse aggregate) and has two overflow holes (one is badly eroded) near the top. The one in good condition contains what appears to be steel tube. The weir is 4.5m long, 1.5m high (max at the centre) and 0.25m thick. A large amount of sludge and rotting organic matter has built up behind the weir, as the overflow holes have stopped operating effectively.

A historical dam (c.1900) and reservoir (1913) was located upstream, so it is not known if this structure is associated with those sites, with the Combes/Daldy lime works, or has some other association.¹² Based on the 1928 geological map of the area (Figure 9), the reservoir was located on the unnamed stream to the east of the subject site, but further upstream and outside of the project area.

The weir is outside the project area and the current Historic Heritage Overlay (within the stream to the east) so is not impacted by the proposal.

5.10 Condition

A condition survey for visible structures was not undertaken, although a visual survey of the kilns has been carried out in the past by Salmond Reed Architects (Section 4). The kilns themselves are currently overgrown, as is the tramway. The path down to the kiln bases and landing site is reasonably well maintained.

Exploratory investigations (See Section 7) revealed little evidence for subsurface archaeological features related to the Combes / Daldy Lime works site, other than evidence for the tramway already identified. It is not known how the site was decommissioned, and the presence or absence of permanent structures and materials used for construction of any buildings has not been determined. However, the scale of the operation does not appear to have been extensive, based on current information. It is also a possibility that some processes, such as grinding of the lime once fired, were not carried out on the site. This instead may have been undertaken at Brown's Mill almost immediately opposite the site, which was known to have been adapted to this function. Certainly, the historical newspaper descriptions indicate at least some of the product was shipped in a less refined state, initially.

¹² According to the *Historic Heritage Topic Report Warkworth Structure Plan* (2018) the Wilsons Cement company acquired a large block of land containing limestone reserves on the north side of the river (Locker 2001:281), including the Combes and Daldy lime works and a creek below Sandspit Road (Brassey and Walker 2018: 38). The company dammed the creek in 1913 to create a reservoir to supply water to their works on the south side of the Mahurangi River. The dam was built at the site of an earlier dam built ca 1900 to provide water to steamers then servicing Warkworth. The water was carried down the creek bed and across the Mahurangi River in pipes (Rodney and Otamatea Times, Waitemata and Kaipara Gazette 12 March 2013:5).



Figure 29. Site plan (southern) with topographic survey overlaid on drone imagery. Archaeological features identified during the survey undertaken 6th April 2021 are shown. Most of these are thought to relate to the Combes/ Daldy lime works site (NZAA R09/2240/ AUP 569). (Base map Buckton Consulting Survey 06/05/2021)

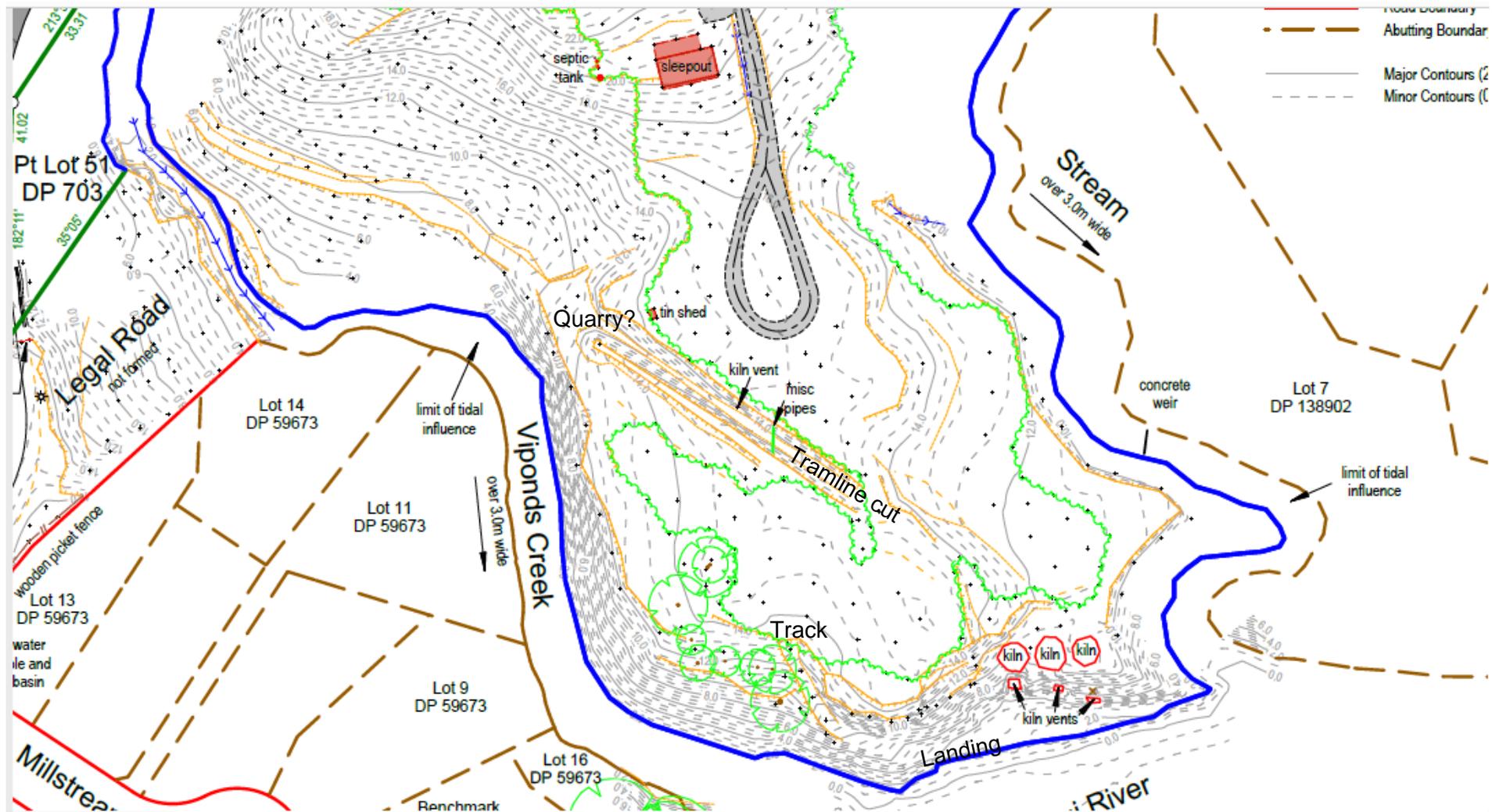


Figure 30. Site plan (southern) showing the topography and archaeological features identified during the survey undertaken 6th April 2021. The tramline cut, 3 kilns and features identified on the river landing relate to the Combes/ Daldy lime works site (NZAA R09/2240/ AUP 569). (Base map Buckton Consulting Survey 06/05/2021)



Figure 31. Site plan (northern) with topographic survey overlaid on drone imagery. No archaeological features were identified in this area during the survey undertaken 6th April 2021. It is not thought that the Combes/ Daldy lime works site (NZAA R09/2240/ AUP 569) extended this far north, which is why this area is outside the Historic Heritage Overlay. The former pre-1928 house site is shown (Base map Buckton Consulting Survey 06/05/2021)



Figure 32. General property photos (Brown 06/04/2021)

	
View looking down onto the head of kiln 1, from possible terminus of the tramway, Looking S	View of the head of kiln 2, from possible terminus of the tramway, looking SE
	
Kiln 3 head, looking SW	Kiln 1 head, looking SW
	
Walkway down to the river landing and kiln vents, looking SW	The river terrace/ landing, with kiln vents (white markers) in river bank, looking E
	
Kiln 2 vent, looking N	Kiln 3 vent, looking NE

Figure 33. Kilns, river terrace, wharf and track (Brown 06/04/2021)



New kiln vent located withing tramline cut, east bank, looking E

New kiln vent located withing tramline cut, east bank, looking E

North-western terminus of the tramline, looking SE

Looking SE at tramline north-western terminus, with bund to west

Two cast-iron pipes located in the tramway embankment

Possible infilled section of the tramline, now used for vehicle access. Looking NE.

Looking SW along possible southern alignment of the tramline

Looking E at the possible southern terminus of the tramline

Figure 34. Tramline cut (Brown 06/04/2021)



Figure 35. Flat areas (Brown 06/04/2021)

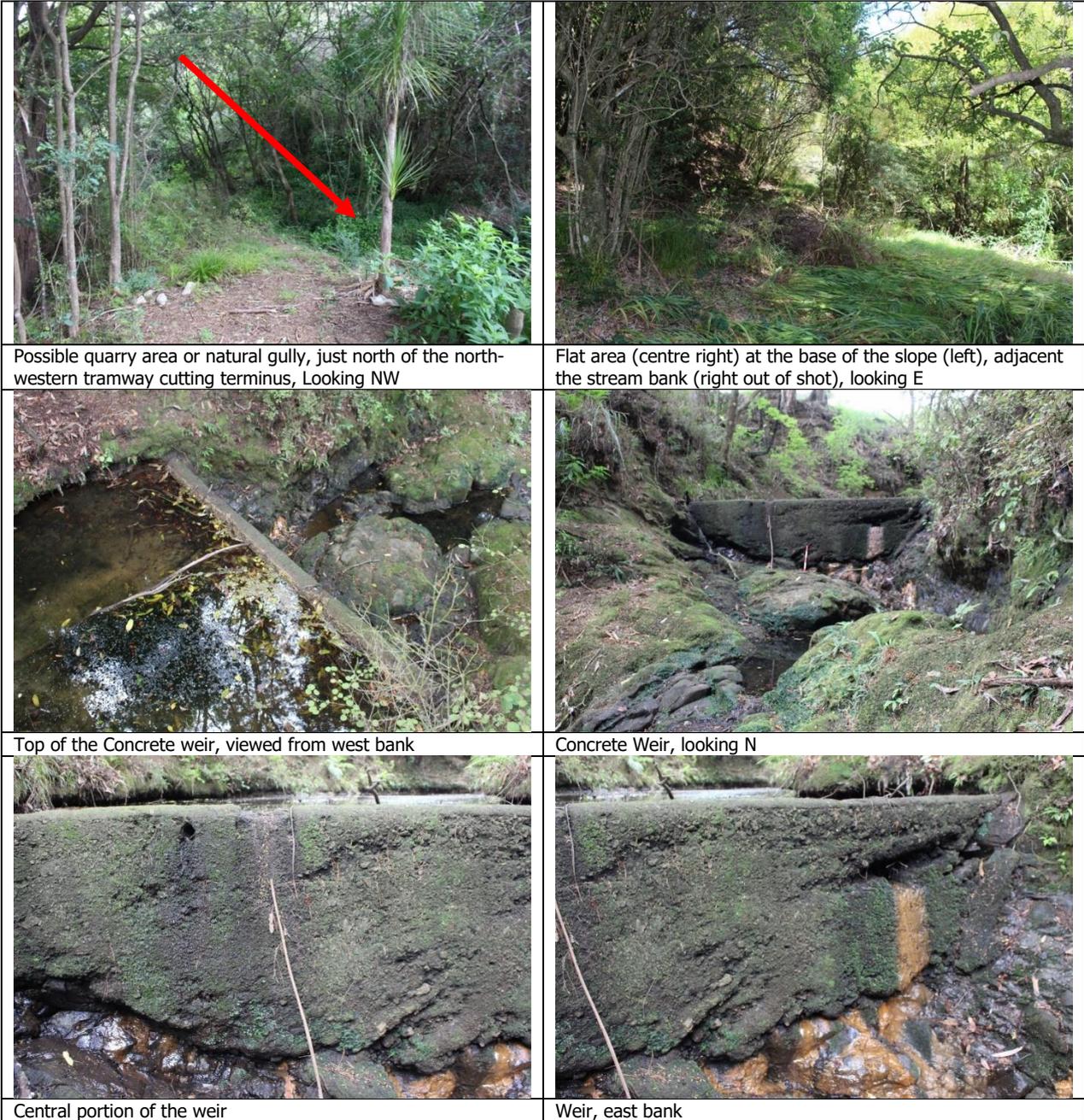


Figure 36. Quarry and Concrete weir (Brown 06/04/2021)



Figure 37. Areas A, B & C identified during the May 2021 field survey as having archaeological potential, but which required further investigation (Base map Auckland Council Geomaps)

6. GEOPHYSICAL INVESTIGATION

6.1 Geophysical investigation methodology

A pre-lodgement meeting was held with Heritage New Zealand and Auckland Council heritage staff on 03/05/2021, who recommended a geophysical investigation be commissioned by the landowner. This was intended to inform the location of the proposed exploratory investigation trenches, and to investigate the extent of the scheduled Combes /Daldy Lime works site in more detail.

The three areas identified for geophysical investigation focused on the flat areas of land where there is no clear evidence for archaeological remains, but which were considered to have higher potential based on the desktop research and field survey (see Section 5.7). These areas were defined as Area A, B and C (Figure 37). The geophysical investigation process is non-invasive and so did not require resource consent from Auckland Council or an authority from Heritage NZ.

The purpose of the geophysical investigation as set out in the brief was:

- To inform the location of exploratory investigation trenches, to determine the likely extent and nature of subsurface remains extant within the property.

The methodology for the geophysical investigation was:

- 3D GPR measurements on Areas A, B, C using 400MHz frequency
- Geomagnetic measurements, GSM-19 gradiometer/GPS. Areas A,B,C
- Data processing analysis, interpretation, results shown on maps and sections

Geomagnetic measurements were taken to help identify material with high ferrous metal content, such as waste pits (ash from kilns, dumps of metal etc.), tramlines and the alignment of the cast iron water pipes.

The GPR is a ground penetrating radar, which provided imagery at different depths below the ground. In this instance the operator walked in transects/ grids of 1m. Depending on the site conditions, GPR anomalies may pick up possible subsurface remains/ features, areas of general disturbance and/or identify areas that don't appear to have any anomalies of note. Anomalies identified through this process needed to be 'groundtruthed' through the exploratory trenches (See Section 7) to provide any conclusive results about the presence or absence of subsurface archaeological remains.

6.2 Geophysical investigation results

This work was undertaken in May 2021 by specialist Geophysical consultants ScanTec, who are experienced in carrying out geophysical investigation of archaeological sites. All measurements, data processing and analysis were carried out by Matt Watson (geophysicist), presented in the Technical Report that has been provided to Auckland Council and Heritage NZ.¹³ The geophysical results identified several anomalies within the vicinity of the proposed exploratory trench locations (Figure 38). These anomalies were unidentified and could be modern, natural or archaeological in nature. For example, Area A8 contained cavities that the geophysical expert has interpreted to be due to ground stability issues in proximity to the stream gully. Some anomalies appeared to strongly relate

¹³ Watson. June 2021. Technical Report for Geophysical Survey – 36 Sandspit Road, Warkworth

to the disused iron pipeline identified in field survey and apparently visible as a N-S aligned cropmark in the 1962 aerial photography (Figure 15), whilst the other anomalies would have to be clarified by ground truthing through the proposed evaluation trenches (Section 7). The Geophysical Survey Technical Report recommended that the GPR and magnetic anomalies are investigated further to confirm whether they are archaeological features. It should be noted that it is advisable to excavate outside anomalies, as a control measure, to confirm the absence of archaeological features also.

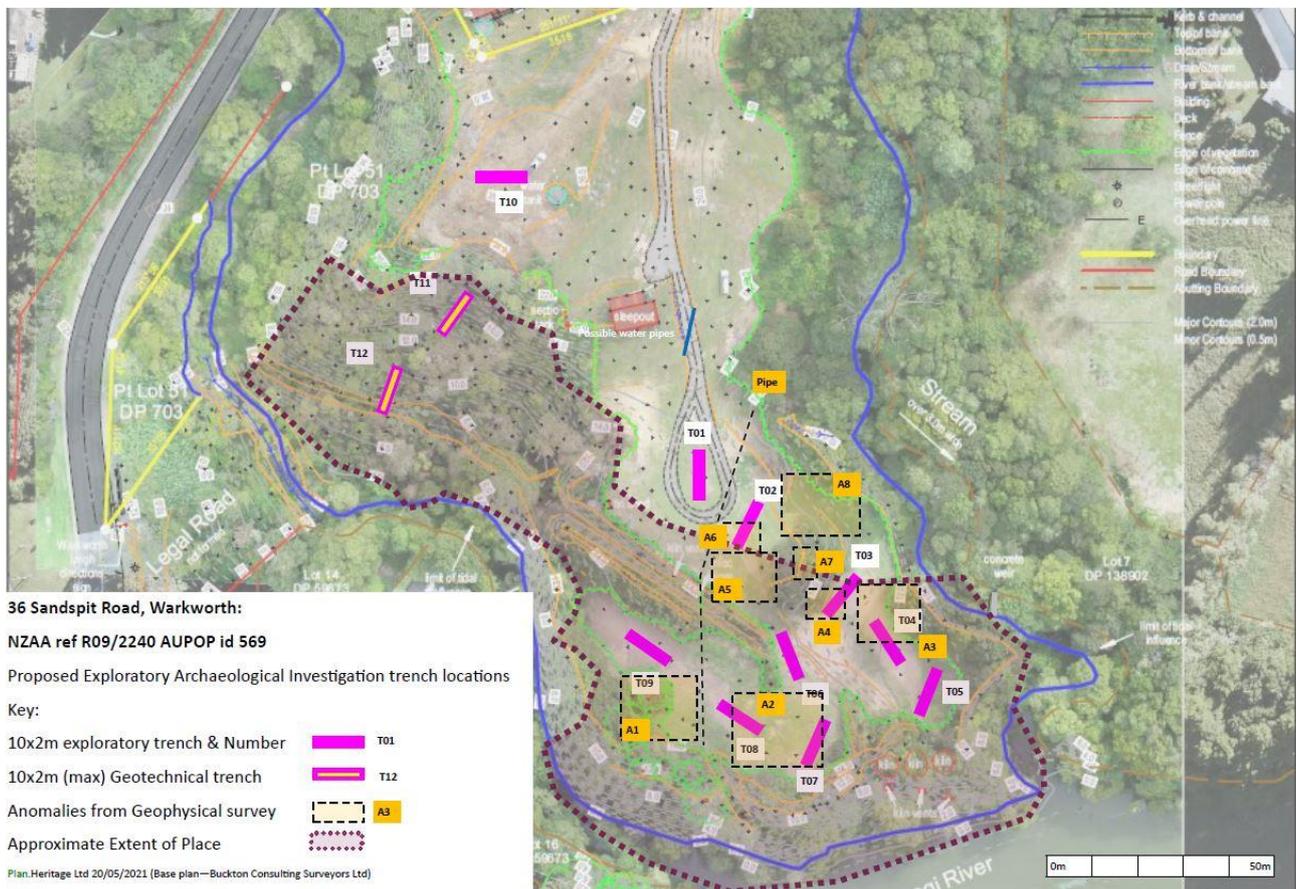


Figure 38. Overlay of proposed investigation trenches initial locations (pink), with geophysical results (labelled orange boxes) and the scheduled Extent of Place (dotted line)

7 ARCHAEOLOGICAL EXPLORATORY INVESTIGATION (AUTHORITY 2021/753; RESOURCE CONSENT LUC60378963)

An Authority was granted by Heritage New Zealand to undertake exploratory archaeological investigation of the Combes/Daldy Lime works site in June 2021, and the associated Resource Consent granted in December that same year. This is a summary of the results.

7.1 Reason for archaeological exploratory Investigation

A review of Auckland Council PC 27 (Section 9.2) and the results of this assessment (Section 5), demonstrates that the *Extent of Place* for the Combes/ Daldy lime works site is not well defined. This is because there were no detailed archaeological investigations to establish the extent of the surviving archaeological features. The Kilns Ltd. therefore, agreed to privately fund an archaeological exploratory investigation to investigate the scheduled Combes/Daldy Lime works site.

Necessity

The two main reasons for the investigation are:

- To provide a more robust evidence base for the Combes /Daldy Lime works Historic Heritage Overlay. The AUP RPS Objectives emphasise identification of significant historic heritage places, so that they can be protected from inappropriate subdivision, use and development (B5.2.1 (1)).
- To fulfil Heritage New Zealand requirements to undertake an exploratory investigation for the Combes /Daldy Lime works site in advance of any detailed development proposals for the property¹⁴. An exploratory investigation is a standard archaeological authority process (Section 56 of the HNZPTA 2014), which is typically utilised to establish the presence or absence of an archaeological site, or to carry out limited investigation of a known archaeological site to determine its boundaries or nature.¹⁵

The exploratory investigation was intended to inform the PPC, so that the historic heritage overlay provides for the protection of the Combes/ Daldy lime works, whilst also enabling appropriate development opportunities, as directed by the Warkworth Structure Plan, AUP Urban Development (RPS Section B2) and National Policy Statement on Urban Development. The investigation results have also informed the proposed subdivision design. It has enabled better identification of heritage constraints and opportunities, as well as informing the design of detailed development proposals so that historic heritage can be avoided, or potential adverse effects remedied or mitigated. As such, the proposal will help give effect to s6 (f) of the Resource Management Act, including protecting historic heritage from inappropriate use.

Good Practice

The archaeological exploratory investigation follows good practice widely accepted in the heritage sector. The management of historic heritage places, including conservation and use, must be based

¹⁴ Heritage New Zealand confirmed at the pre-lodgement meeting on 03/05/2021 that they consider it good practice to undertake an exploratory investigation for the Combes /Daldy Lime works site in advance of any detailed development proposals for the property.

¹⁵ <https://www.heritage.org.nz/protecting-heritage/archaeology/standard-archaeological-authority-process>

on a full understanding of the place and its historic heritage values¹⁶. Archaeological knowledge is based principally on scientific investigation and as set out in the ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value Revised 2010, "*all available forms of knowledge and evidence provide the means of understanding a place*"¹⁷. In relation to subsurface archaeological remains, physical investigation is particularly important:

*"Physical investigation of a place provides primary evidence that cannot be gained from any other source. Physical investigation should be carried out according to currently accepted professional standards, and should be documented through systematic recording."*¹⁸

Recording of archaeological sites is an essential part of the physical investigation:

*"Evidence provided by the fabric of a place should be identified and understood through systematic research, recording, and analysis. Recording is an essential part of the physical investigation of a place. It informs and guides the conservation process and its planning."*¹⁹

7.2 Archaeological exploratory trenches

The areas identified for the exploratory trenches were informed by the previous research and fieldwork to date. These were reviewed following the geophysical investigation and were refined to a limited degree during the investigation to avoid unnecessary impact, for example, the length of Exploratory trench 6 was shortened once features associated with the tramline had been identified. Trench 7 was shifted westwards slightly to avoid tree roots and to better cover areas of geophysical anomalies, and trench 8 was also shifted slightly west to pick up the waterpipe line identified by field and geophysical survey. The exploratory investigation trench locations are shown in Figure 39.

The specific research questions that are addressed by the investigation are set out in the Site Investigation Strategy that accompanied the authority and resource consent applications (Brown 2021b).

As set out in the Heritage Impact Assessment (Brown 2021a) and Site Investigation Strategy (Brown 2021b), the investigations did not disturb *in situ* features or remove any archaeological material encountered during the investigation. On the completion of works the ground was reinstated in accordance with the resource consent conditions.

7.3 Geotechnical and soil investigations

The authority and resource consent applications also included preliminary geotechnical and soil investigation of the subject property, which were carried out in conjunction with the archaeological investigation (Figure 40; Figure 41). Two geotechnical investigation trench locations were proposed (trenches 11 and 12) within the undefined quarry area. However, following commencement of works

¹⁶ Conservation Principle 2. Understanding cultural heritage value. ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value Revised 2010

¹⁷ Conservation Principle 2. Understanding cultural heritage value. ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value Revised 2010

¹⁸ See Conservation Principle 7. Physical investigation. ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value Revised 2010

¹⁹ Conservation Principle 12. Recording. ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value Revised 2010

it was decided to undertake hand auguring in these locations instead, as there were concerns over safely operating machinery on the steep slope, within the bush (HA16-21 and HA17-21). The soil samples consisted of auger holes, max 70mm diameter and max 750mm from relative ground level. All except one were positioned within the proposed exploratory trenches, to avoid additional ground disturbance within the Historic Heritage Overlay (see Figure 42).

7.5 Summary of Exploratory investigation results

Natural ground layers

Trenches 02, 03, 04 and 05 north of the tramline were all positioned to investigate geophysical anomalies but were devoid of archaeological features (Figure 42; Figure 43). In these locations, the same sequence of deposits was observed. A thin layer of recent grass and topsoil overburden, c.200-300mm typically, was observed in each trench. Below this, weathered brownish grey weathered clay-rich topsoil was evident in all trenches at depths of 300-700mm typically, to the limit of excavation, which was halted when a clean natural orange-grey and orange-brown mottled clay layer was reached. The weathered clay layer was devoid of cultural artefacts, and is currently interpreted as a natural soil deposition, interfacing between the modern overburden and the weathered clay.

Following these investigations it seems that the geophysical anomalies identified to the north of the tramline were either related to modern surface activities (vegetation clearance and bonfires), or natural variations in the underlying clay/rock formation.

A similar sequence of natural soil deposits was observed in trenches 07 and 09 on the southern side of the tramline, towards the river (Figure 44). Although both locations covered areas of geophysical anomalies, no archaeological features were identified in these trenches. As with the northern area, there was clear evidence of bush clearance and wood chippings from vegetation management. It is therefore thought that the anomalies in these locations also relate to modern site activity or natural variations in underlying rock.

As well as the exploratory archaeological trenches, two geotechnical testpits (TP01-21 and TP01-21) were dug on either side of the central knoll by machine, under archaeological monitoring. Similarly in these location no archaeological features were revealed.

Waterpipes

Trenches 01 and 08 both identified the line of a utilities trench which relates to the water pipes previously identified during field survey and geophysical survey, crossing the tramline on a N-S alignment. In Trench 01, the cut and fill of the trench alignment was visible, but not excavated, while in Trench 08, the water pipes were identified immediately below the modern grass/overburden layer (Figure 45).

The current assessment of the waterpipes is that they are a later feature, crossing the line of the tramway, most likely after it had gone out of use. This is because the waterpipes appear to be situated just below modern ground surfaces, stratigraphically later than the formation of the tramway cutting, and their presence would have impeded efficient use of the tramway (Figure 46).

Early 20th century House site

The early house site identified on high ground to the north of the Historic heritage extent of place (Figure 13), was investigated to see if any further information could be found to assist with determining the date of the former structure. The remains of a chimney base, and wooden pile foundations, were located and surveyed (Figure 47; Figure 50). Scattered surface finds were also examined, and preliminary examination of this material has indicated that it was associated with occupation from the early 20th century to the interwar period (Judge C, pers. Comm February 2022). This supports the current interpretation of the house site as being of early 20th century date.

The Tramway alignment

Grass overburden was carefully removed in Trench 06, and beneath this layer a crushed, lightly coloured stone gravel surface could be discerned, which has initially been interpreted as being predominantly of crushed limestone chips (Figure 48; Figure 49). Surface artefacts revealed *in situ* on top of the gravel surface included timber fragments, wrought iron nails of varying size, including probably Ewbank type nails, and larger iron nails / fragments, occasional brick and glass fragments and discarded oyster shell. As the ground was baked hard, and there was no need to excavate further to characterise the surface, some of the overburden was left intact, to avoid damaging the deposit.

The portion of the surface excavated aligned with the tramway cutting, and has therefore been initially interpreted as the foundation surface for the tramway itself. The predicted trajectory appears to align with the possible cutting adjacent to the lime kilns themselves (Figure 33) and identified in the topographic survey (Figure 50).

Other features

It is possible that the tramway extended further west, along the modified terrace path, although this is not confirmed. Comparison of the topographic survey with the 1962 aerial shows that these earthworks strongly correlate with an obviously maintained pathway visible on the 1962 aerial (Figure 50)., and it may be that this feature, at least in its current form with the cut channel, is of more recent date.

The relationship of the concrete weir remains undetermined, though it is apparently constructed using a dark grey, Portland cement-based concrete with coarse, poorly graded aggregate inclusions. If using locally manufactured Portland cement, it would date to after the mid-1880s (when the Wilson Cement factory began making this product)²⁰, and therefore be later than the period in which the lime works is believed to have operated. Initial assessment is that it is therefore unrelated to the Combes / Daldy lime works site.

Possible Quarry pit

The geotechnical investigations revealed limestone in two locations, MH01-21 (at a depth 5.75m down), and HA10-21 (at a depth 2.7m down)²¹. Both of these locations were outside of the extent of place recorded for the Lime works. MH01-21 was taken east of the central knoll, and HA10-21 to

²⁰ Locker 2001. Pg287-297

²¹ CMW Geosciences March 2022 updated Geotechnical report

the west. By contrast, hand augers taken in the extent of place (HA16-21) and HA17-21) found deposits of colluvium up to 1m, but were terminated at this depth and did not reach limestone deposits (Figure 51).

Based on geological section B prepared by CMW Geosciences Ltd, a relatively narrow band of limestone rock (Mahurangi Limestone) is indicated below c.1-2m of colluvium and residual Northland Allochthon silty clays, between HA16-21 and HA17-21. It is possible therefore that the limestone strata under these deposits was not quarried at this location.

Comparison with Geological cross section D shows that there is less colluvium on the western scarp running down towards the river tributary, and the limestone is present but peters out at around 12-13m RL, where a narrow terrace is indicated (approximately 1.5m wide). It is possible that the change of geological stratigraphy at this location indicates quarrying activities, further west towards the tributary (Figure 52).

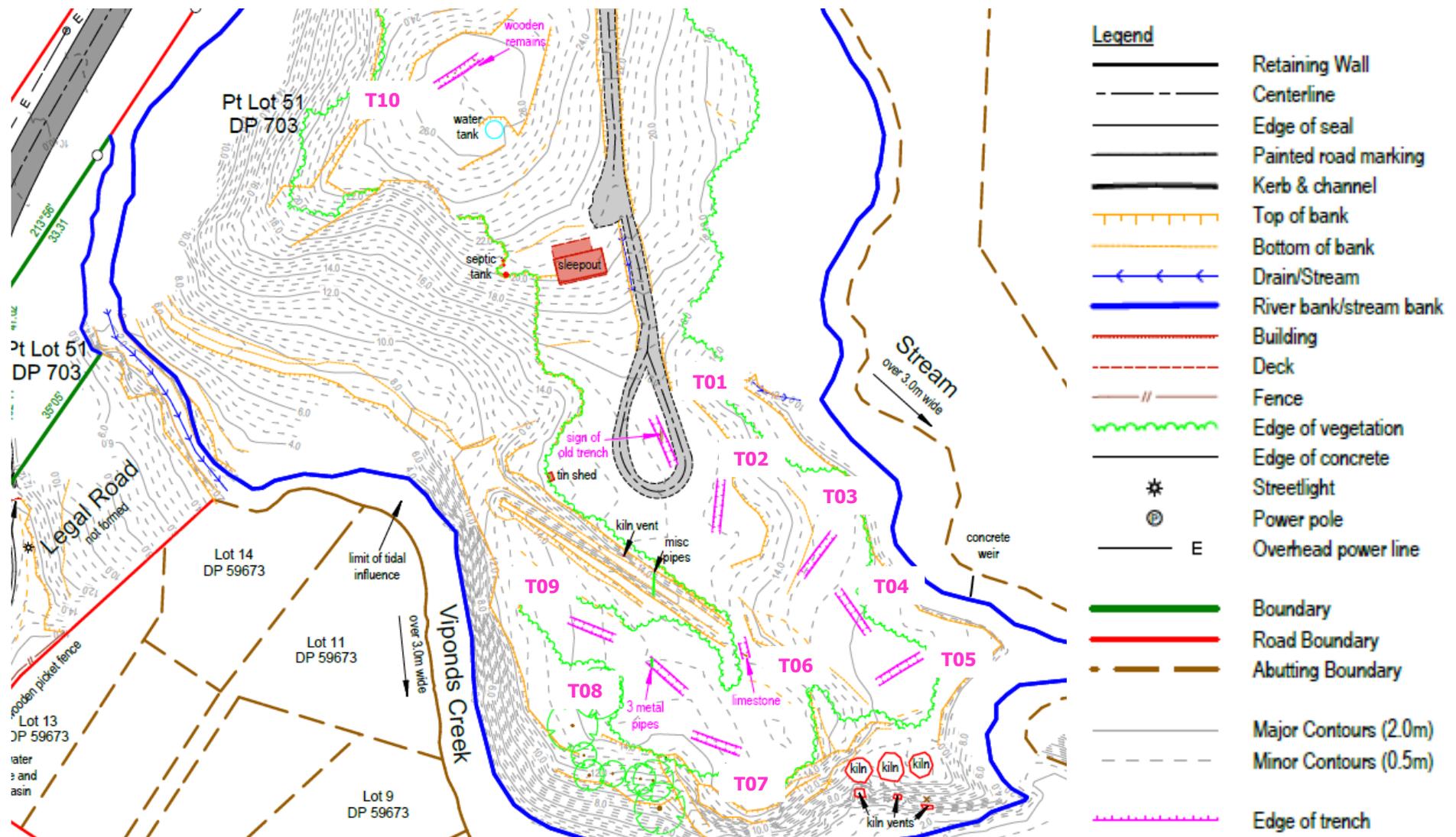


Figure 39. Exploratory Investigation trench locations excavated in January 2022 (plan by Buckton Consulting Surveyors Limited)

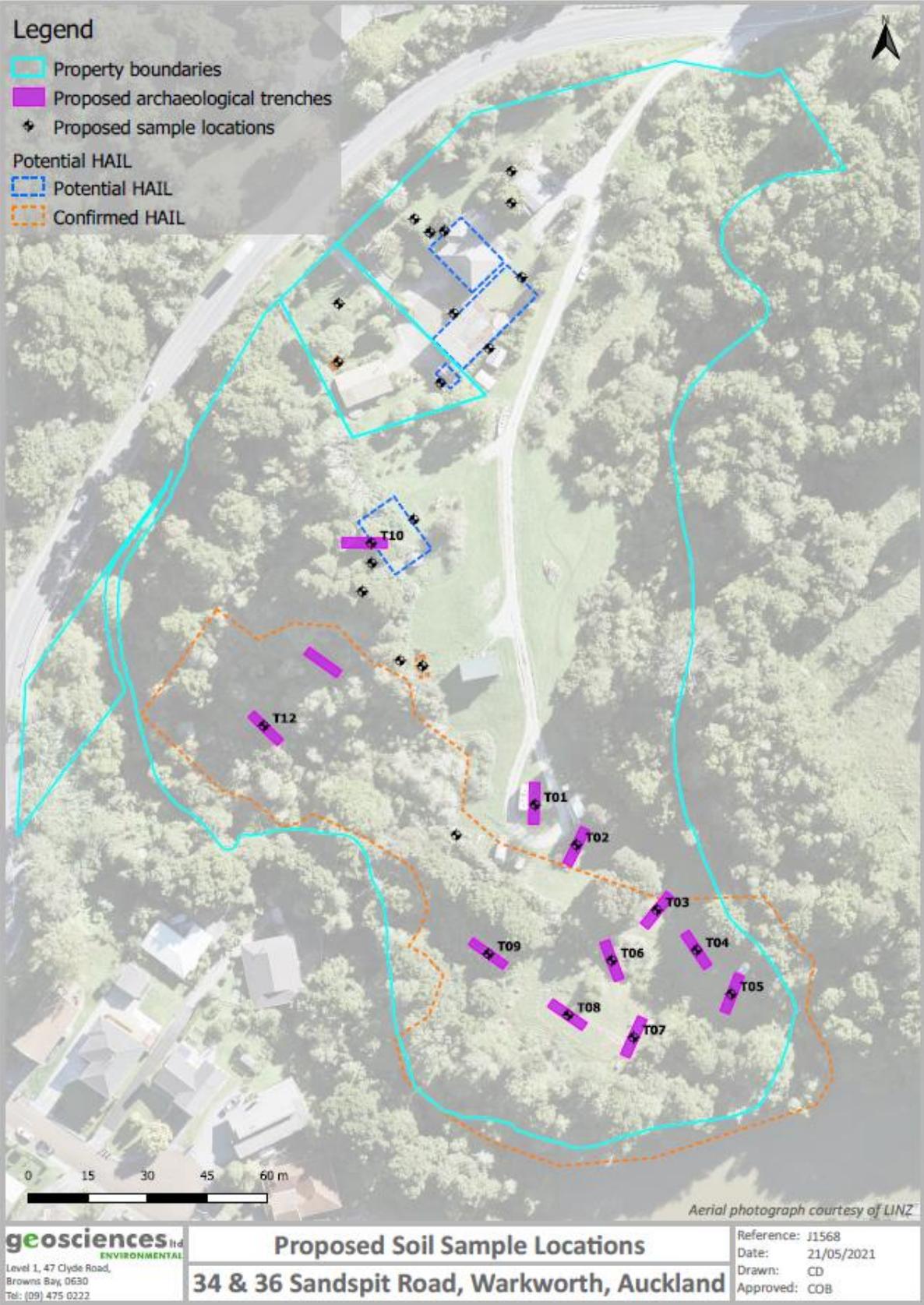


Figure 40. Proposed Geotechnical and HAIL sampling locations



Figure 41. Geotechnical investigations 'as completed' with scheme plan overlaid (detail from CMW Geosciences Ltd March 2022)



Figure 42. Exploratory Trenches 02 (Top), 03 (bottom) showing natural ground with no archaeological features



Figure 43. Exploratory Trenches 04 (top), 05 (bottom) showing natural ground with no archaeological features



Figure 44. Exploratory Trenches 07 (top), 09 (bottom) showing natural ground with no archaeological features



Figure 45. Exploratory Trenches 01 (top) and 08 (bottom) showing line of water pipes.



Figure 46. The waterpipes crossing the tramway cutting, just below modern overburden and stratigraphically later than the tramway cutting itself.



Figure 47. Exploratory Trench 10 – Probable Early 20th century house site (top), detail of pile in situ (bottom left), chimney base (bottom middle), unstratified surface finds (bottom right)

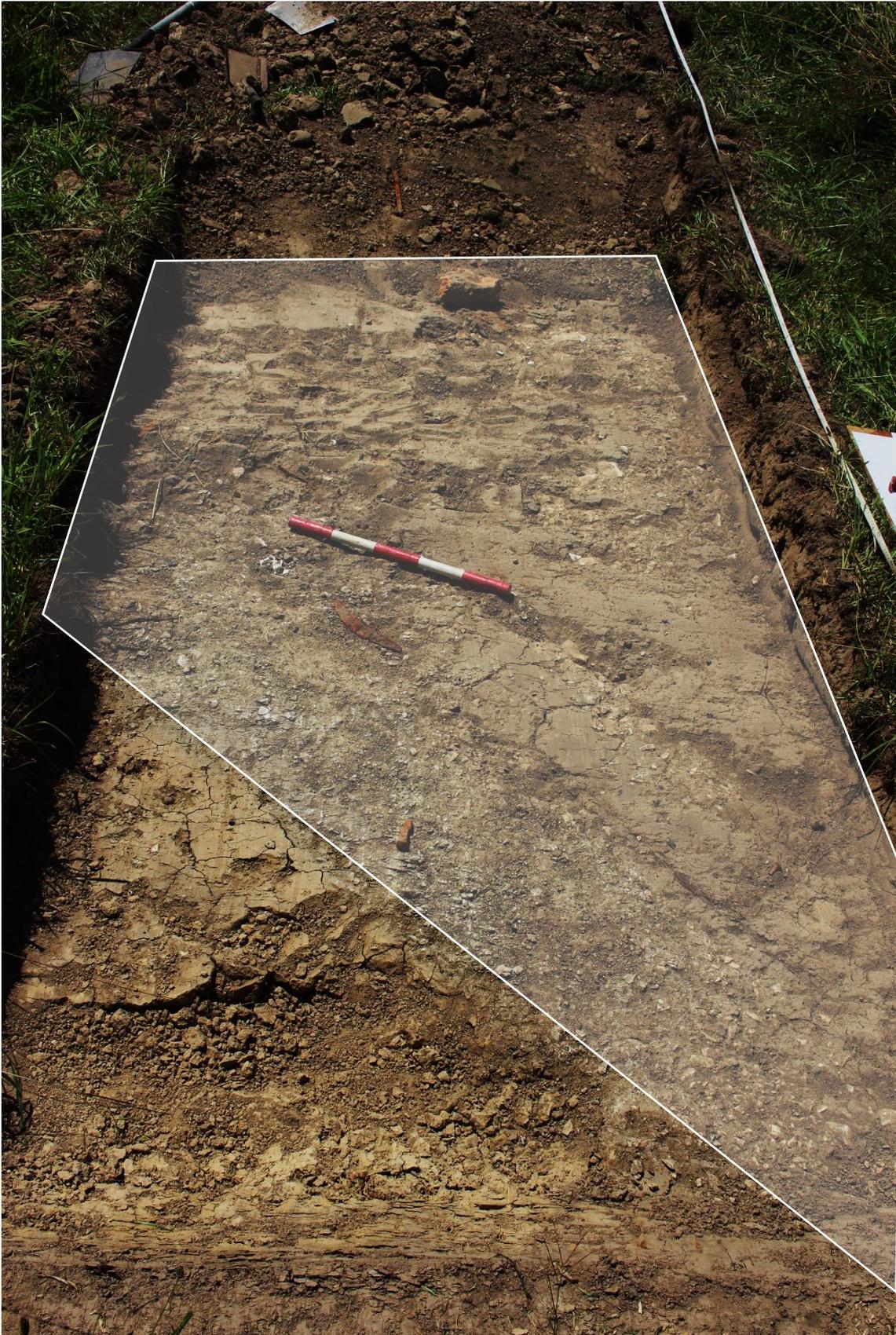


Figure 48. Exploratory Trench 06 looking NW- Continuation of tramline showing *in situ* archaeological surface (highlighted)



Figure 49. 3-dimensional digital plan of Trench 6, with Tramline highlighted (Plan.Heritage Limited)

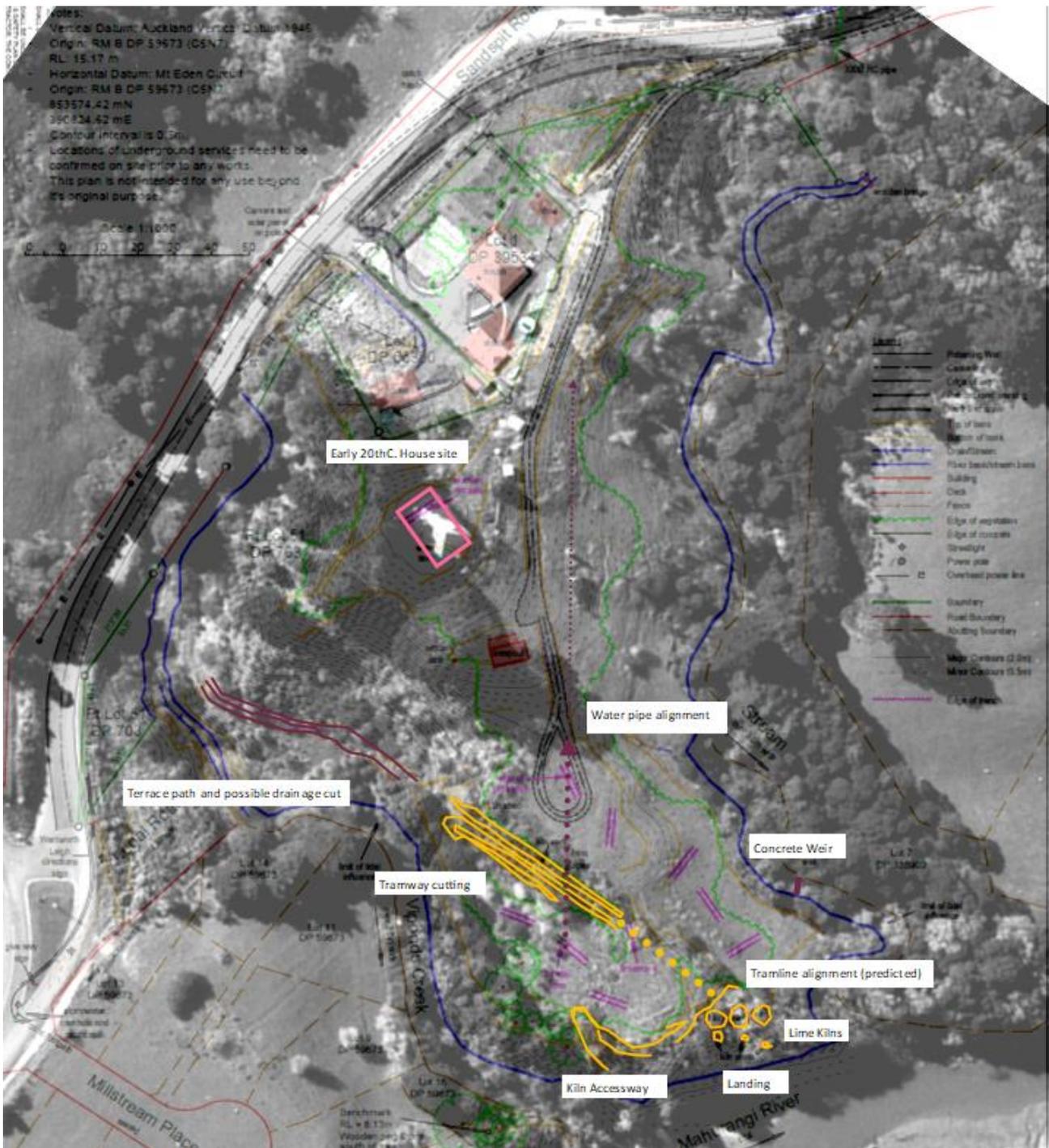


Figure 50, comparison of recorded site features, topographical and geophysical survey results, and 1962 aerial photography. Archaeological features confidently associated with the Lime works are highlighted in yellow. Other features of interest are shown in dark purple, and the early 20th century house site as a pink rectangle.

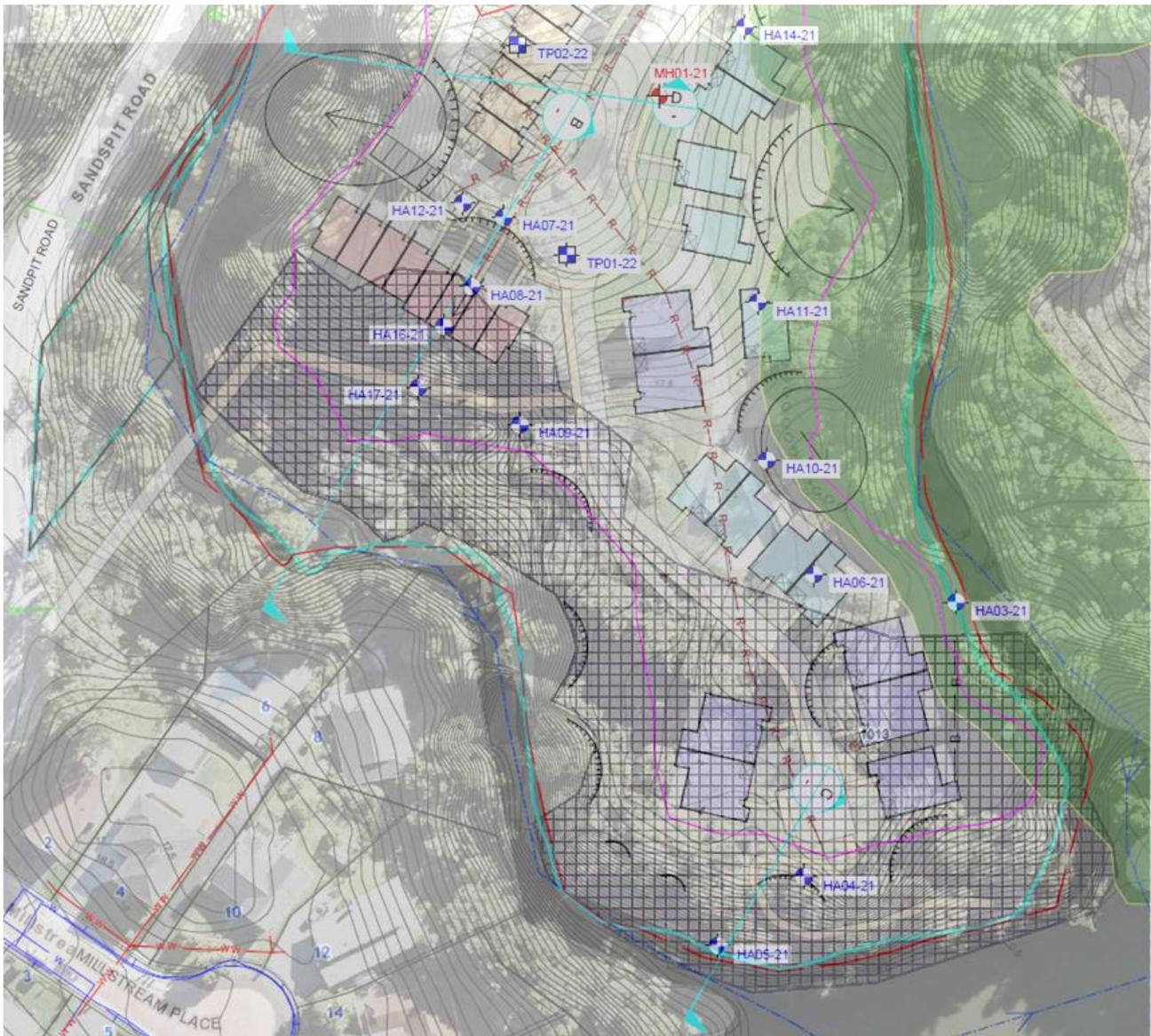


Figure 51. Georeferenced Geotechnical hand auger locations HA16-21 and HA17-21 and line of Geotechnical cross-section B, approximately overlain to the Combes Daldy Lime Works Site Extent of Place (Purple hachures) from base maps by Auckland Council Geomaps and CMW Geosciences

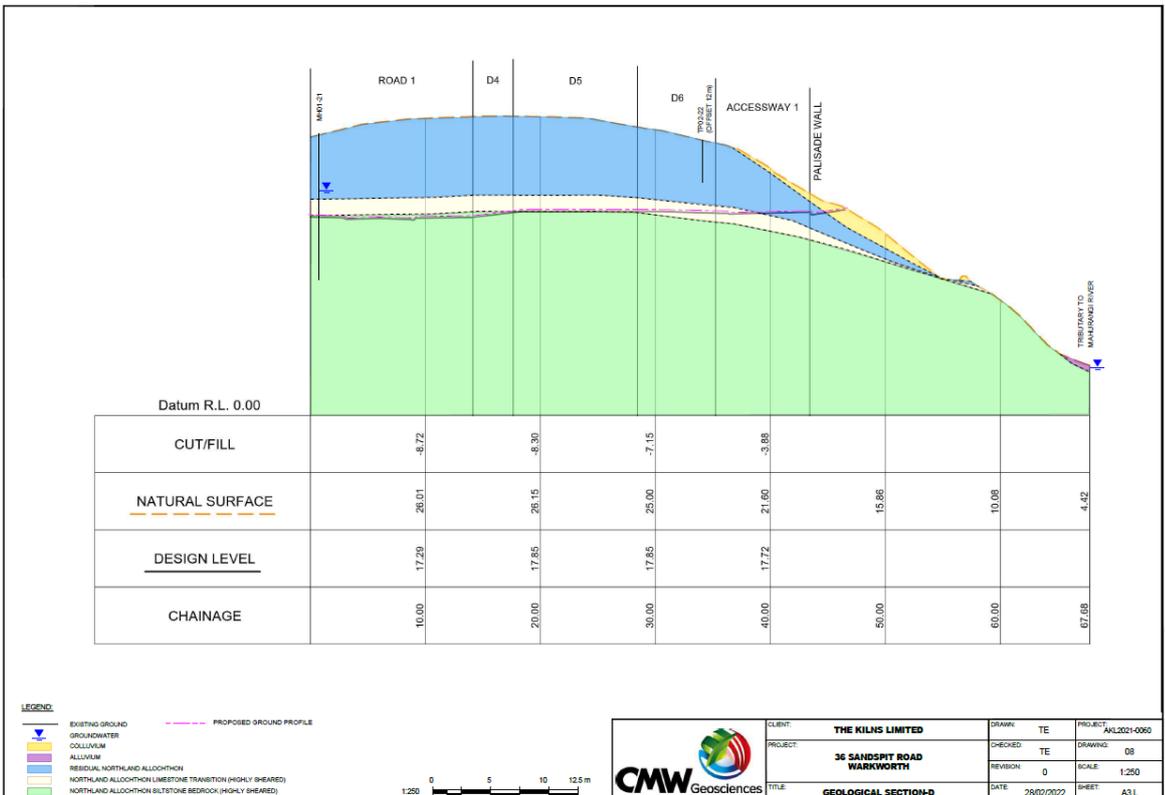
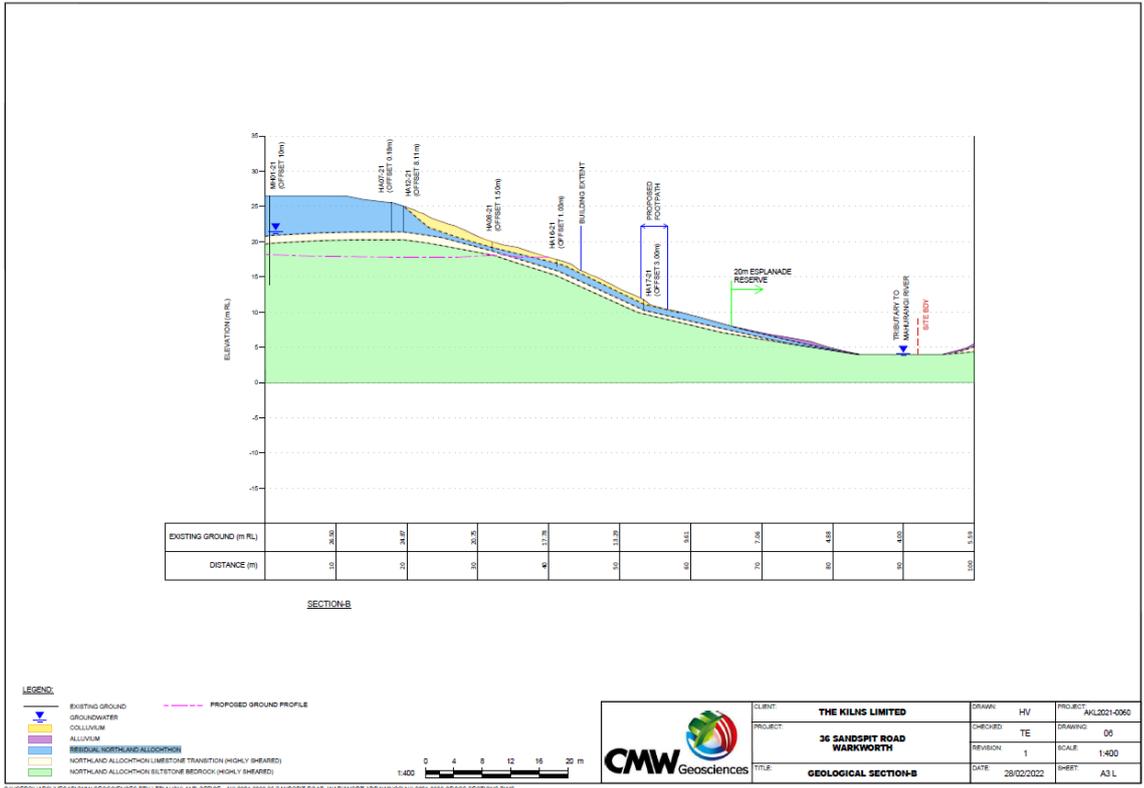


Figure 52. comparison of geotechnical sections B and D (CMW Geosciences March 2022)

8 HISTORIC HERITAGE VALUES

8.1 Historic Heritage Evaluation Process

The Auckland Council heritage information team have been contacted and have provided all Council information pertaining to the site (Appendix 1). Review of this material indicates that a formal assessment report has not yet been prepared by Auckland Council using the Council methodology. This is not uncommon for sites 'rolled over' into the PAUP, however there have been several occasions when one might have expected this to have been undertaken, including the PAUP, Warkworth Structure Plan process and most recently Plan Change 27, which introduced the extent of place (discussed further in Section 9.3).

The Auckland Council methodology/ guidelines²² and template²³ for the assessment of historic heritage places, was introduced for the PAUP and version 2 is available on the Auckland Council website <https://www.aucklandcouncil.govt.nz/arts-culture-heritage/heritage/protecting-our-heritage/Pages/how-evaluate-aucklands-historic-heritage.aspx>. The methodology states:

*"This methodology guides the process of evaluating the significance of historic heritage places against the criteria in the Auckland Unitary Plan (AUP) to determine if a place meets the thresholds for scheduling which are specified in the Regional Policy Statement (RPS). Its purpose is to ensure that there is consistency in the way places are evaluated and that evaluations contain a sufficient level of detail so that subjectivity is minimised, and evaluations are consistent, defensible and transparent."*²⁴

Since this programme of work commenced, a summary Statement of significance has subsequently been prepared by Auckland Council CHI Team (dated September 2021), and this is included in Appendix 1. This statement has not referenced this document or other recent assessment documents prepared by Plan.Heritage Limited as part of the investigations described in Sections 5 to 7 above but is used as the basis for determining values associated with the Combes / Daldy Lime works site, for the purposes of assessing effects.

8.2 Combes/Daldy Lime works historic heritage values

Section B5.2.2 of the AUP RPS sets out the criteria for the identification and evaluation of historic heritage places. The following criteria are assessed as having NA/none, little, moderate, considerable or outstanding value²⁵. This can be at the local, regional, national or international geographical level²⁶:

- a) historical: the place reflects important or representative aspects of national, regional or local history, or is associated with an important event, person, group of people, or with an idea or early period of settlement within New Zealand, the region or locality;

²² Auckland Council. August 2020 Version 2. Methodology and guidance for evaluating Auckland's historic heritage

²³ Auckland Council. August 2020 Version 2. Historic Heritage Evaluation template

²⁴ Auckland Council 2020v2: 5

²⁵ Auckland Council August 2019: 9

²⁶ Ibid.

- b) social: the place has a strong or special association with, or is held in high esteem by, a particular community or cultural group for its symbolic, spiritual, commemorative, traditional or other cultural value;
- d) knowledge: the place has potential to provide knowledge through archaeological or other scientific or scholarly study, or to contribute to an understanding of the cultural or natural history of New Zealand, the region, or locality;
- e) technology: the place demonstrates technical accomplishment, innovation or achievement in its structure, construction, components or use of materials;
- f) physical Attributes: The place is a notable or representative example of a type, design or style, method of construction, craftsmanship or use of materials or the work of a notable architect, engineer or designer.
- g) aesthetic: The place is notable or distinctive for its aesthetic, visual or landmark qualities.
- h) context: the place contributes to or is associated with a wider historical or cultural context, streetscape, townscape, landscape or setting.

A place with historic heritage value can be included in Schedule 14.1 Schedule of Historic Heritage if²⁷:

- (a) the place has considerable or outstanding value in relation to one or more of the evaluation criteria in Policy B5.2.2 (1); and,
- (b) the place has considerable or outstanding overall significance to the locality or greater geographic area.

The Combes/Daldy Lime works site (R09/2240) has been included in Schedule 14.1 Historic Heritage Places of the AUP (ID 569) as a Category B historic heritage place. It is recognised for values A historical; B social; D knowledge; E technology; F physical attributes; and H context. Additional rules for archaeological sites or features applies to the place, but it is not identified as having significance or importance to Mana Whenua (Figure 53). The primary features are described as the entire extent of place, except for the quarry pit (note: the quarry pit is not spatially defined on the planning maps). There are no exclusions identified.

ID	Place Name and/or Description	Verified Location	Verified Legal Description	Category	Primary Feature	Heritage Values	Extent of Place	Exclusions	Additional Rules for Archaeological Sites or Features	Place of Maori Interest or Significance
00558	Broomfield House	3 Neville Street, Warkworth	LOT 1 DP 40569	B		A,B,D,F,H	Refer to planning maps	Interior of building(s)		
00559	Christ Church	1 Bambo Street (also known as 39- 43 Percy Street), Warkworth	LOT 1 DP 441372	B		A,B,D,F,H	Refer to planning maps	Interior of building(s)		
00560	Warkworth Band Hall	4 Church Hill, Warkworth	PT SEC P ALLOT 67 PSH OF MAHURANGI; PT ALLOT 321 PSH OF MAHURANGI	B		A,B,D,F,H	Refer to planning maps	Interior of building(s)		
00561	Elizabeth Street bridge	Elizabeth Street, Warkworth	Road reserve	B		A,B,D,F,H	Refer to planning maps			
00562	Bakehouse (former)	19A Queen Street, Warkworth	LOT 3 DP 52117	B		A,B,D,F,H	Refer to planning maps	Interior of building(s)		
00563	Residence	16 Hill Street, Warkworth	LOT 5 DP 35262; road reserve	B		A,B,D,F,H	Refer to planning maps	Interior of building(s)		
00564	Methodist Church	29 Neville Street, Warkworth	LOT 3 DP 186917	B		A,B,D,F,H	Refer to planning maps	Interior of building(s); non- historic section of church		
00565	Band rotunda and obelisk	8 Church Hill, Warkworth		B		A,B,D,F,H	Refer to planning maps			
00566	Bank of New Zealand (former)	11 Neville Street, Warkworth	LOT 1 DP 455609	B		A,B,D,F,H	Refer to planning maps	Interior of building(s)		
00567	Rodney House/Hinemoa House	2 Baxter Street, Warkworth	LOT 2 DP 455609; road reserve	B		A,B,D,F,H	Refer to planning maps	Interior of building(s)		
00568	Rodney Motors (former)	41 Queen Street, Warkworth	LOT 2 DP 92292; road reserve	B		A,D,F,H	Refer to planning maps	Interior of building(s)		
00569	Combes/Daldy lime works site R09_2240	36 Sandspit Road, Warkworth	Pt Lot 51 DP 703; CMA	B	Entire extent of place except quarry pit	A,B,D,E,F,H	Refer to planning maps		Yes	

Figure 53. AUPOP Schedule 14.1 entry for Combes / Daldy Lime Works Site

The Council CHI site history prepared in September 2021 has summarised the historic heritage values associated with the Combes Daldy Lime works site as follows, with the caveat that this summary is not an official evaluation:

²⁷ AUP RPS B5.2.2.(3)

a) Historical	Considerable
b) Social	Considerable
c) Mana Whenua	N/A
d) Knowledge	Considerable
e) Technology	Considerable
f) Physical attributes	Considerable
g) Aesthetic	N/A
h) Context	Considerable

**The attributes for this table are to be sourced from the AUP schedule 14.1 and supplemented by rollover evaluations of the place in the property file. This is not intended as an evaluation of the place against the criteria.*

Figure 54. Summary of historic heritage values accompanying the recently updated site history (Appendix 1, Attachment G).

8.3 Combes/Daldy Lime works archaeological values

Heritage NZ has provided guidelines setting out criteria that are specific to archaeological sites (condition, rarity, contextual value, information potential, amenity value and cultural associations) (Heritage NZ 2006a: 9-10).

The archaeological value of sites relates mainly to their information potential, that is, the extent to which they can provide evidence relating to local, regional, and national history through the use of archaeological investigation techniques, and the research questions to which the site could contribute. The surviving extent, complexity and condition of sites are the main factors in their ability to provide information through archaeological investigation. For example, generally pa are more complex sites and have higher information potential than small midden (unless of early date). Archaeological sites may also have other values, including landscape, amenity, educational and cultural values.

Although recorded as an archaeological site, a formal assessment against HNZ criteria does not appear to have been carried out in previous assessments until recently. The 2021 Archaeological Assessment prepared by Plan.Heritage (Brown and Judge 2021) included the assessment set out in Table 1. This has been used to evaluate the value and significance of the archaeological site under the Heritage NZ criteria. Overall, the Combes/ Daldy Lime works (R09/2240) is considered to have high archaeological value based on the criteria discussed.

Table 1. Assessment of the archaeological values of Combes/ Daldy Lime works (R09/2240) based on Heritage NZ criteria (Heritage NZ 2006: 9-10) After Brown and Judge 2021

Value	Assessment
Condition	Visible features associated with the site include the three kilns; a broad flat terrace adjacent the river; the remains of a timber wharf; a track running north from the river terrace up the slope; and a cutting for the tramway that ran from the quarry to the kilns. General observations are made on the condition of the kilns in the Salmond Reed Condition Report (2020), which states "The kilns are in good condition when considering the lack of intervention there has been" (2020:11). It is noted however that the report recommends that a geotechnical engineer inspects the condition of the kilns. The kilns and tramway are presently overgrown with shrubs and trees which are affecting the physical fabric of these structures. The northern end of the tramline is in better condition than the southern end (good – poor condition). The wharf has largely eroded away so is in poor condition. The

	survival and condition of subsurface remains associated with the Combes/ Daldy lime works site is unknown, as there have been no archaeological investigations to establish this.
Rarity	There were a number of Lime works locally and regionally in the 19th to early 20th century. This means at the time of operation the Lime works would not have been uncommon; however today the survival of features and structures are relatively rare. Good examples survive locally at the Wilson Cement Works and Kowhai limekilns, however the Combes/ Daldy lime works is of different construction and likely to be earlier in date than these other examples.
Contextual value	The Combes/ Daldy lime works has value as part of a group of lime works sites, locally and regionally. It is representative of the industry in the 19th century in Warkworth. It is unknown at this stage if the lime was used on any notable building projects, but there is evidence it was transported to Auckland and used on railway projects in the region.
Information potential	No archaeological excavation has been carried out to investigate potential subsurface remains associated with the Lime works, or the visible structures themselves in any detail. The Salmond Reed Condition Report (2020) recommended clearing debris out of kilns and 3D scanning. Archaeological sites of this nature may have subsurface remains such as working floors, foundations for buildings (sheds, lime stores, workers huts etc.), railway lines, fuel deposits, rubbish deposits, latrines, artefacts etc. Further investigation of the site could help to confirm the date it was in operation and how it was decommissioned. It could also provide further information on the functional, spatial, and temporal arrangement of the site, technology used, and changes through time.
Amenity value	The archaeological features are not highly visible in the landscape and are a H&S risk, which limits their amenity value at present. Presently there is no existing public walkway and the site is in private property (as well as CMA). There is potential to provide visual, amenity and educational value if some of these constraints to public access can be addressed in the future. There is opportunity to enhance these values through signage and interpretation, but none exists currently.
Cultural associations	The Lime works site is associated with early European industry. It is not identified in the AUOP schedule as being of Māori interest or significance.

Note: the archaeological values assessment provided above has not been updated. As outlined in this report, physical investigations have now been undertaken (See Section 7). As a result of recent investigations, the information potential of the site may be assessed further:

Information potential is considered as low, in areas immediately north and south of the tramway cutting, and further north towards the main road. These areas returned no evidence of archaeological features related to the Combes Daldy Lime Works site. Possibly isolated remains of working surfaces, materials storage and building foundations or chance artefacts might be present. While there may still be some potential for subsurface archaeological deposits to survive, they are unlikely to be extensive or significant in character.

The possible quarry area has also been alternatively interpreted as containing natural scarps, as a result of geotechnical investigation. On this basis, and given that the 19th methods of quarrying rock, tools employed and the source of the material quarried is readily understood from historical sources, the information potential of the possible quarry area is considered to be low-moderate.

The information potential within the tramway cutting is considered to be moderate, as there is evidence for partial survival of archaeological features and artefacts on the alignment, while the

potential of the kilns is considered to be high, as they are surviving examples of mid-19th-century lime production technology.

The other values are unchanged.

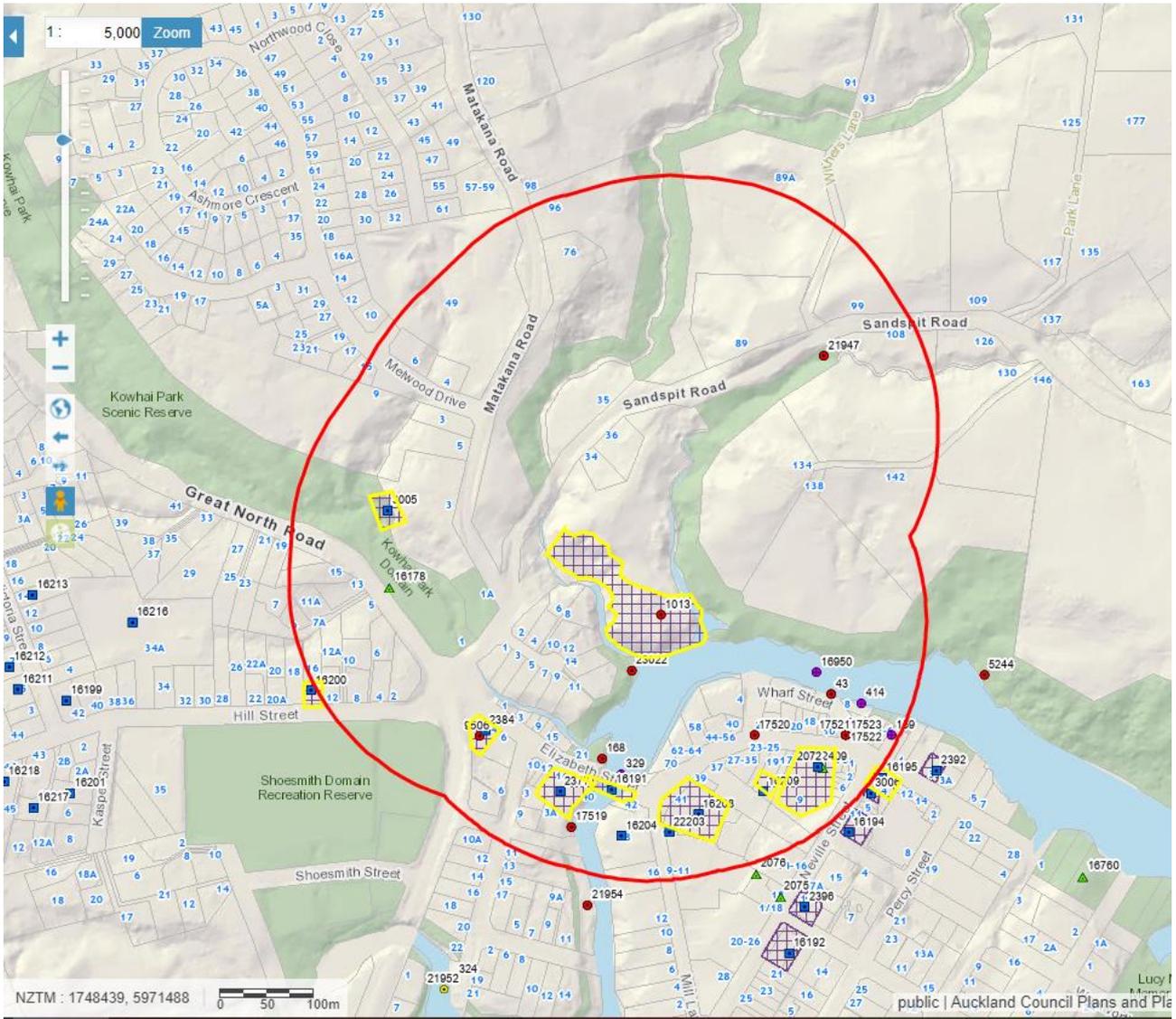
8.4 Sites in the general vicinity that may be affected by changes to their setting

As the proposal includes considerable development, the possibility of changes to the setting of nearby historic heritage places was also considered. A radius of 250m around the entire project area was selected, returning a total of 10 scheduled historic heritage places, including the subject site (Table 2; Figure 55). Three of these sites are also included on the New Zealand Heritage List/Rārangi Kōrero (Figure 56) and three, including the subject site, are also recorded as archaeological sites (Figure 57).

Of these, none are recognised for their aesthetic/landmark values, which is the category most affected by changes to setting. All other values associated with these places (historical association, social, knowledge, technological, physical attributes and context) are unaffected by the proposal. Further assessment of these sites is therefore not undertaken.

Table 2. Scheduled historic heritage places in the vicinity of the project area

AUPOP Schedule id	Site/Address	Category	Values	HNZ Ref	NZAA ref	CHI ref
552	Courthouse (flourmill/lime works site) 2-4 Elizabeth Street	B	A,B,D,F,H	489	R09/678	2384 / 9506
562	Bakehouse (former) 19A Queen Street	B	A,B,D,F,H	N/A	N/A	16209
563	Residence 16 Hill Street,	B	A,B,D,F,H	N/A	N/A	16200
567	Rodney House/Hinemoa House 2 Baxter Street	B	A,B,D,F,H	N/A	N/A	16195
568	Rodney Motors (former) 41 Queen Street	B	A,D,F,H	N/A	N/A	16208
561	Elizabeth Street bridge	B	A,B,D,F,H	N/A	N/A	16191
556	Bridge House 16 Elizabeth Street	B	A,B,D,F,H	484	N/A	2377
555	Lime kilns Kowhai Park Domain, 1 and 3 Matakana Road	B	A,B,D, E, F,H	N/A	N/A	3005
557	The Warkworth Establishment Hotel 9 Queen Street	B	A,B,D,F,H	502	R09/2186	2409
569	Combes/Daldy lime works site R09_2240 36 Sandspit Road	B	A,B,D,E, F,H	N/A	R09/2240	1013



Auckland Council CHI Key

Auckland Council AUPOP heritage-related overlays Key

Archaeological Site ●	Historic Heritage Overlay Place [rcp/dp] ●	Built Heritage & Character
Hayward and Diamond ■	Historic Heritage Overlay Extent of Place [rcp/dp] [Grid Pattern]	
Historic Botanical Site ▲	Special Character Areas Overlay Residential and Business [Dotted Pattern]	
Historic Structure ■	Auckland War Memorial Museum Viewshaft Overlay [rcp/dp] [Thick Line]	Mana Whenua
Maori Heritage Area ●	Auckland War Memorial Museum Viewshaft Overlay Contours [rcp/dp] [Thin Line]	
Maritime Site ●	Sites & Places of Significance to Mana Whenua Overlay [rcp/dp] [Dashed Line]	Natural Heritage
Reported Historic Site ●	Notable Trees Overlay ▲	

Figure 55. Sites of historical interest in the vicinity - 250m radius (Auckland Council Geomaps)

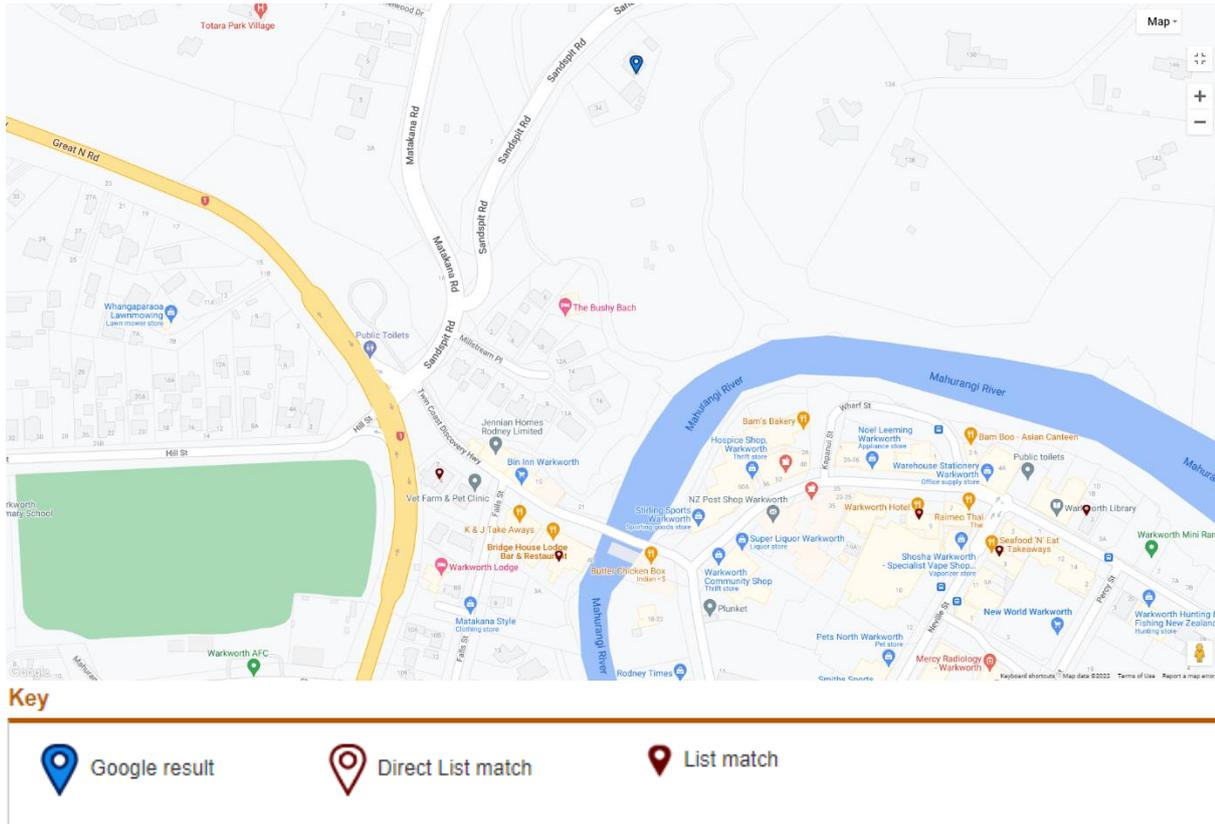


Figure 56. Places included on the New Zealand Heritage List/Rārangī Kōrero

36 Sandspit Road

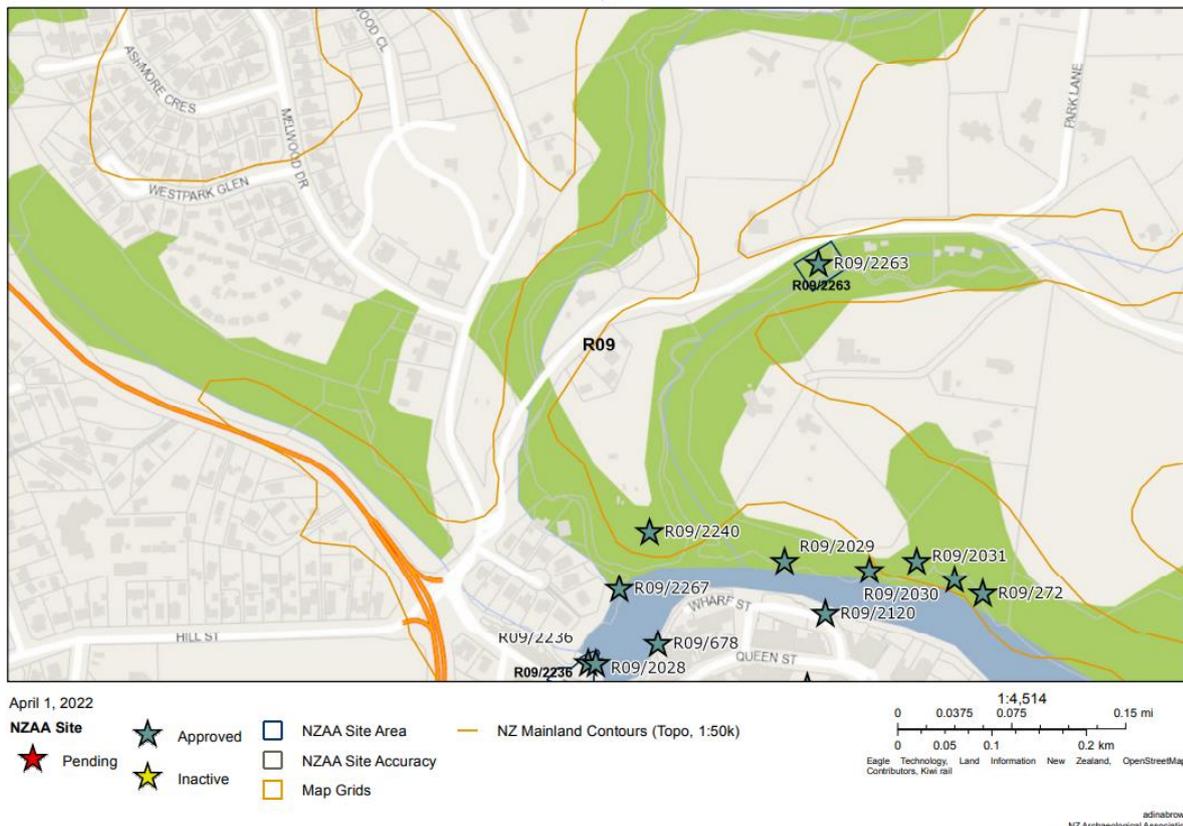


Figure 57. Archaeological sites recorded in the vicinity (NZAA Archsite Database)

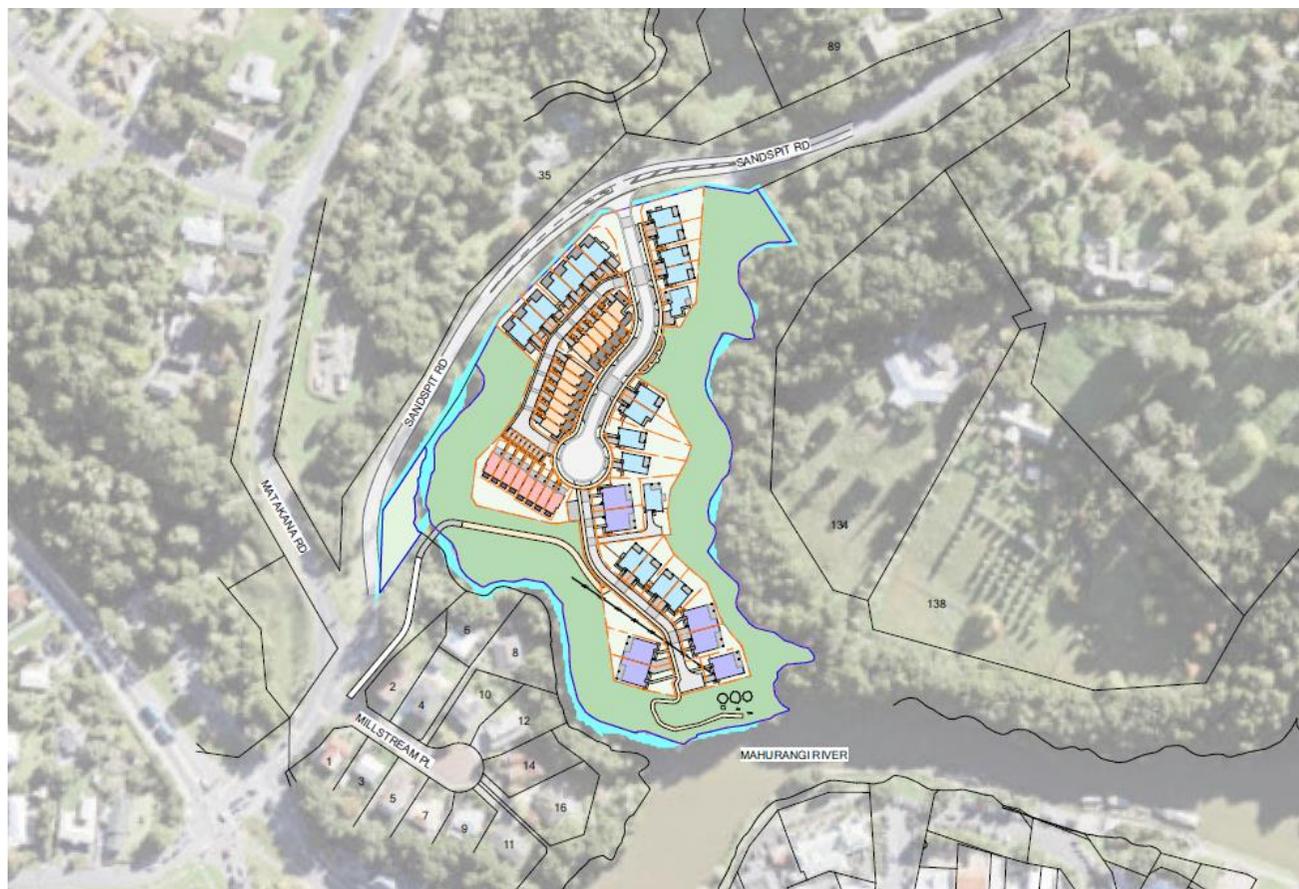
9 THE PROPOSED SUBDIVISION AND DEVELOPMENT SCHEME

9.1 Overview of Proposal

The Kilns Limited is applying to the Auckland Council to subdivide land at 34 and 36 Sandspit Road, Warkworth (Project Area). In summary the current proposed development, as per the proposed scheme and building plans provided by Pacific Environments Architects NZ Ltd (referenced 21007, sheets A210 and A300 to A302, dated 27 January 2022), includes:

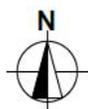
- the formation of 49 residential dwellings comprising 1 to 3-storey terraced houses, duplexes, and standalone houses, with an associated access road and JOALs.
- Engineering drawings provided by Airey Civil Structural and Fire Engineers (referenced 85070-01, sheets 200 to 203, 210 to 213, 260, 300 to 303, 310 to 313, and 320 to 321, dated March 2022), show cuts and fills of up to approximately 10m and 4.5m respectively, to form the finished ground profile for the proposed development.
- They also depict the construction three retaining walls to support the proposed cuts and fills; two proposed retaining walls are located along the northern boundary of the site with maximum retained heights of up to 5.31m and one within the central portion of the site with a maximum retained height of 3.2m.
- These drawings also show preliminary locations for in-ground (palisade) walls around the existing instability features onsite, identified in the geotechnical report (CMW Geosciences Ltd. dated March 2022).

An outline of the proposed subdivision scheme is shown in Figure 58, and the relationship of this scheme to the extent of place and recorded features is shown in Figure 59. An overview of the proposed earthworks, and detailed areas where these encroach into the Extent of Place, are shown in Figure 60, Figure 61, and Figure 62.



Proposed Overall Site Plan with Aerial

1:2000



The Kilns Development

34-36 Sandspit Road Warkworth 0982

FOR RESOURCE CONSENT

Title
Proposed Overall Site with Aerial

Date 22/03/2022 Scale 1:2000 @A3

Client
The Kilns Ltd



P.O. Box 8807 Symonds St, Auckland, NZ
Ph (09)308-0070 Email info@penz.co.nz
ref no. 21007
sheet no. A200 revision A

Figure 58. Proposed Subdivision Plan concept (Architects Pacific Environments)

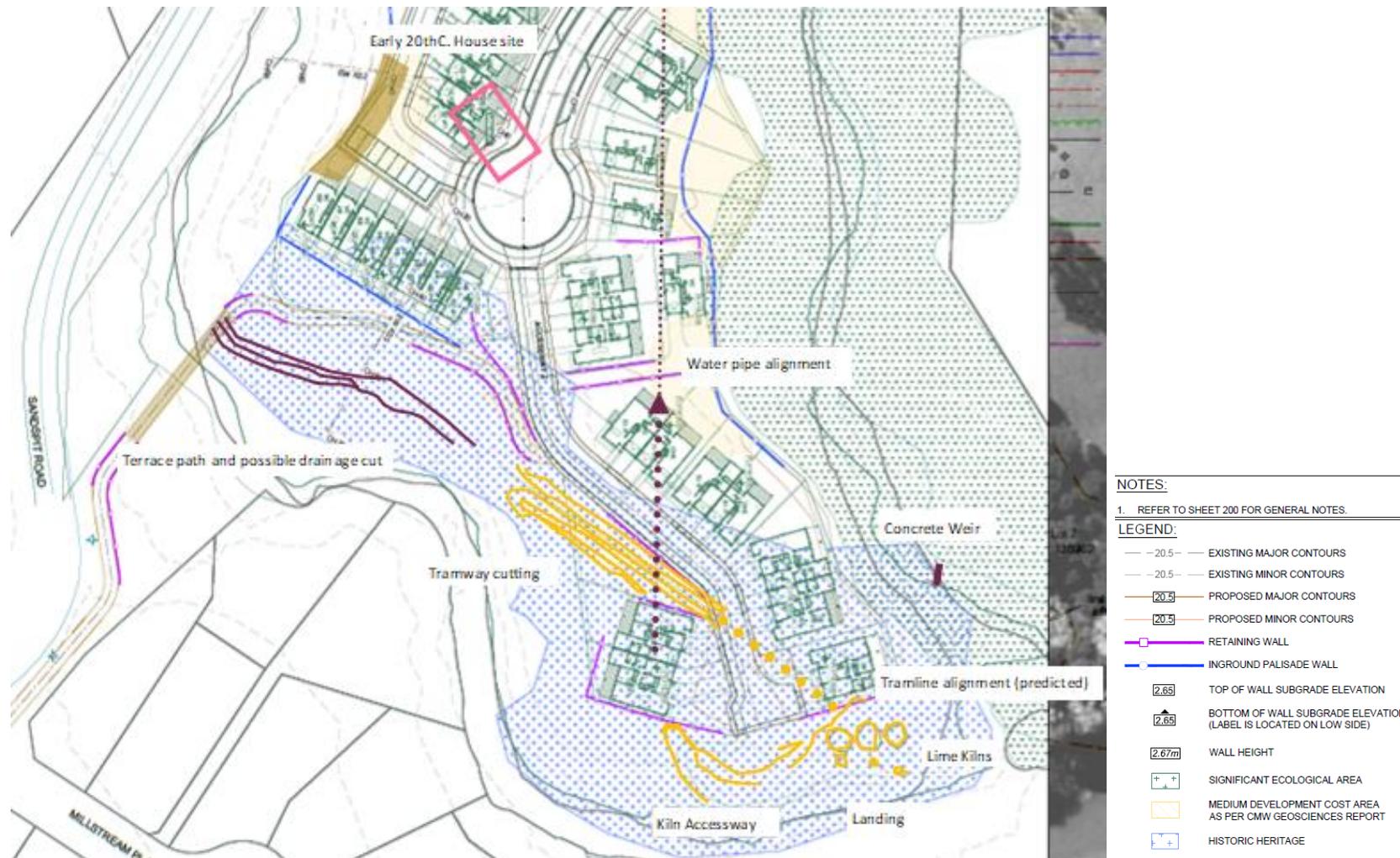
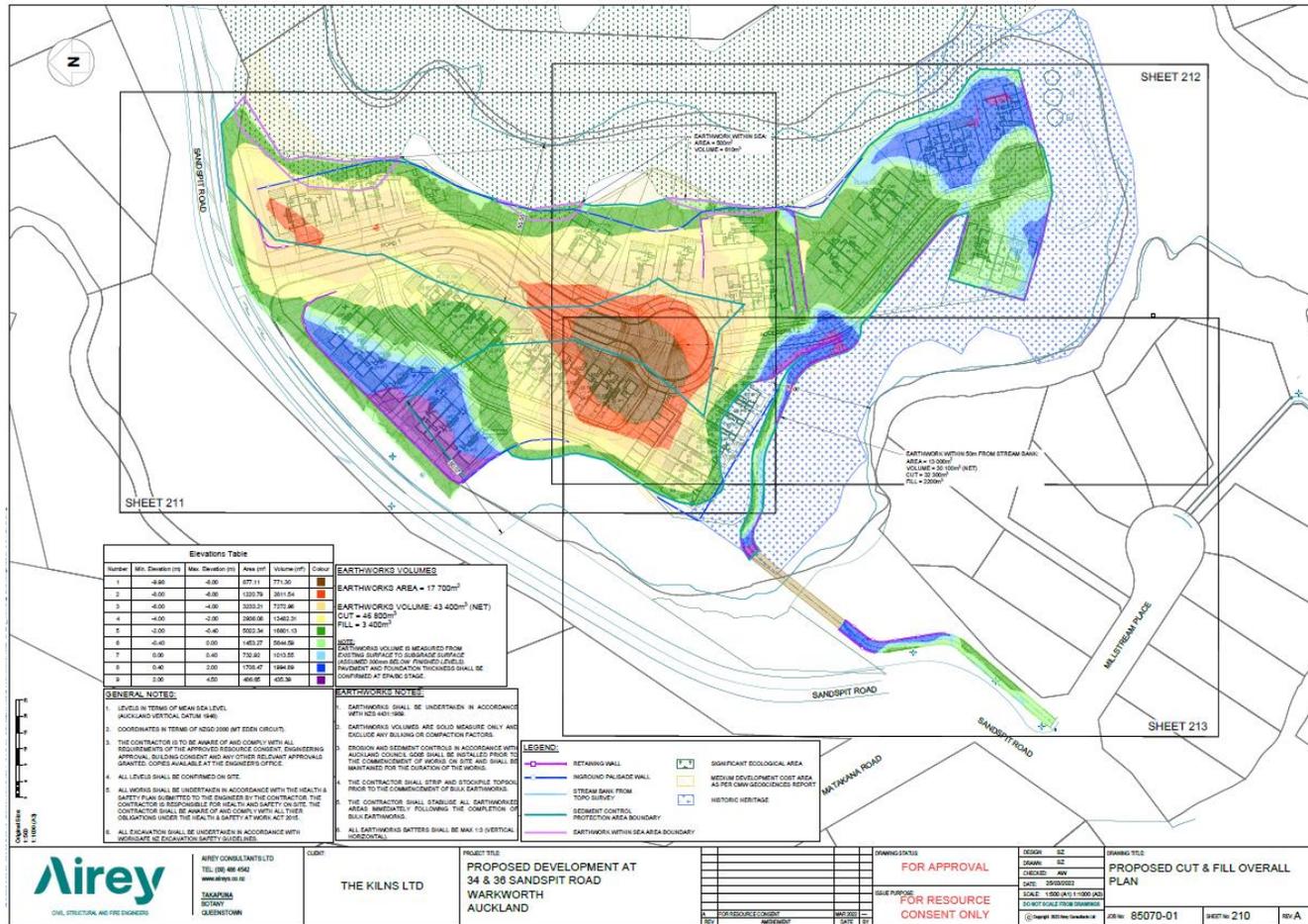


Figure 59. Subdivision plan overlain with confirmed archaeological recorded features (solid yellow lines), Early C20th century house site (pink rectangle) line of water pipe (Dashed purple arrow) undated track and weir features (solid purple lines) and Historic Heritage Extent of Place (blue hachures) (base plan prepared by Airey Consultants limited)



Elevations Table

Number	Min. Elevation (m)	Max. Elevation (m)	Area (m ²)	Volume (m ³)	Colour
1	-9.98	-8.00	877.11	771.30	Dark Brown
2	-8.00	-6.00	1220.79	2811.54	Red
3	-6.00	-4.00	3233.21	7272.96	Orange
4	-4.00	-2.00	2936.08	13482.31	Yellow
5	-2.00	0.00	5022.34	16801.13	Light Green
6	0.00	0.40	1453.27	5644.59	Green
7	0.00	0.40	732.92	1013.55	Light Blue
8	0.40	2.00	1708.47	1994.69	Blue
9	2.00	4.50	486.65	435.39	Purple

Figure 60. Areas of earthworks in relation to Historic Heritage Overlay Extent of Place. Areas of cut are shown as warm colours, with areas of fill as cool colours (Airey Consulting Ltd March 2022)

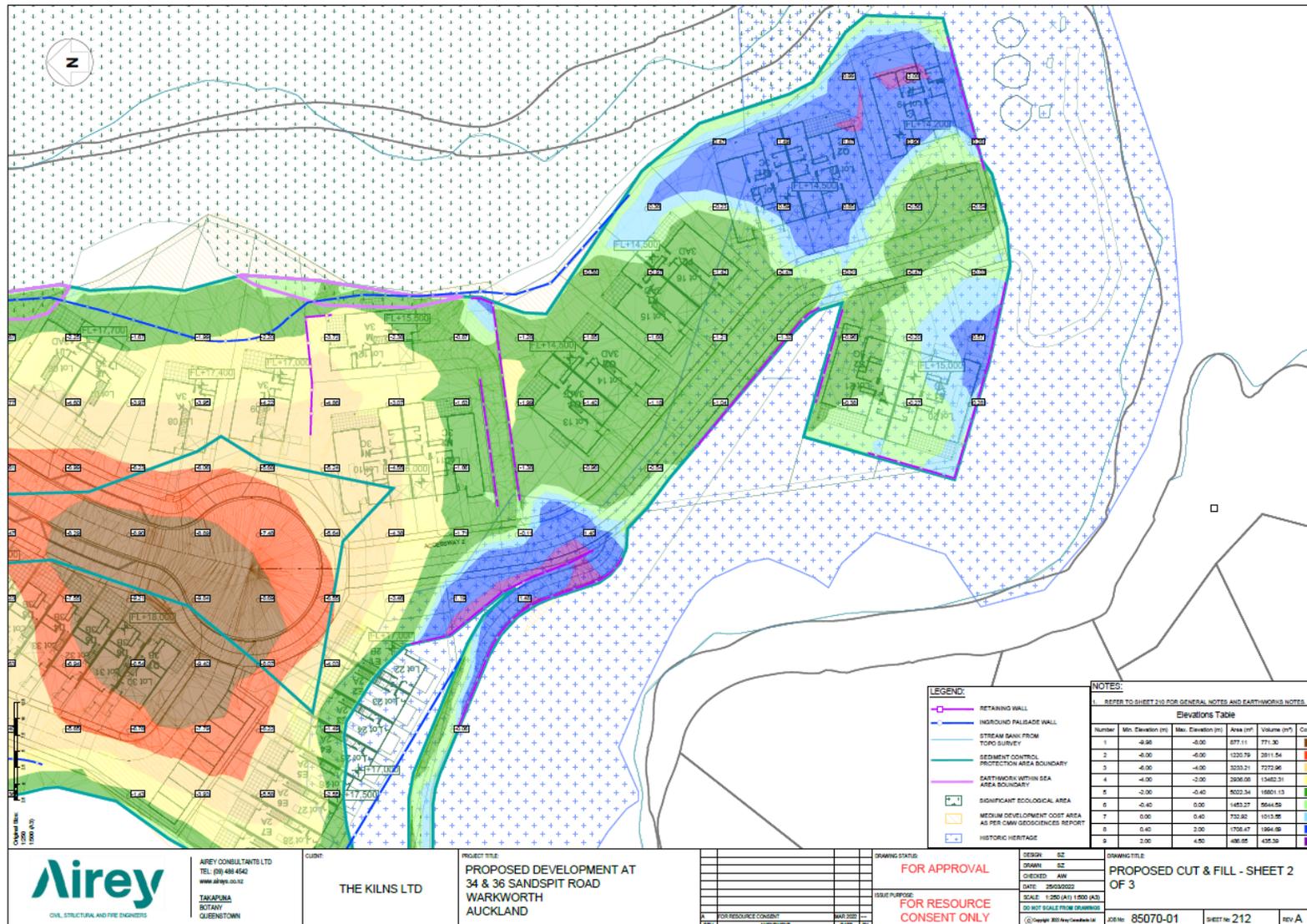


Figure 61. Historic Heritage Overlay Extent earthworks detail – east (base map by Airey & Buckton Consulting Surveyors Ltd March2022)

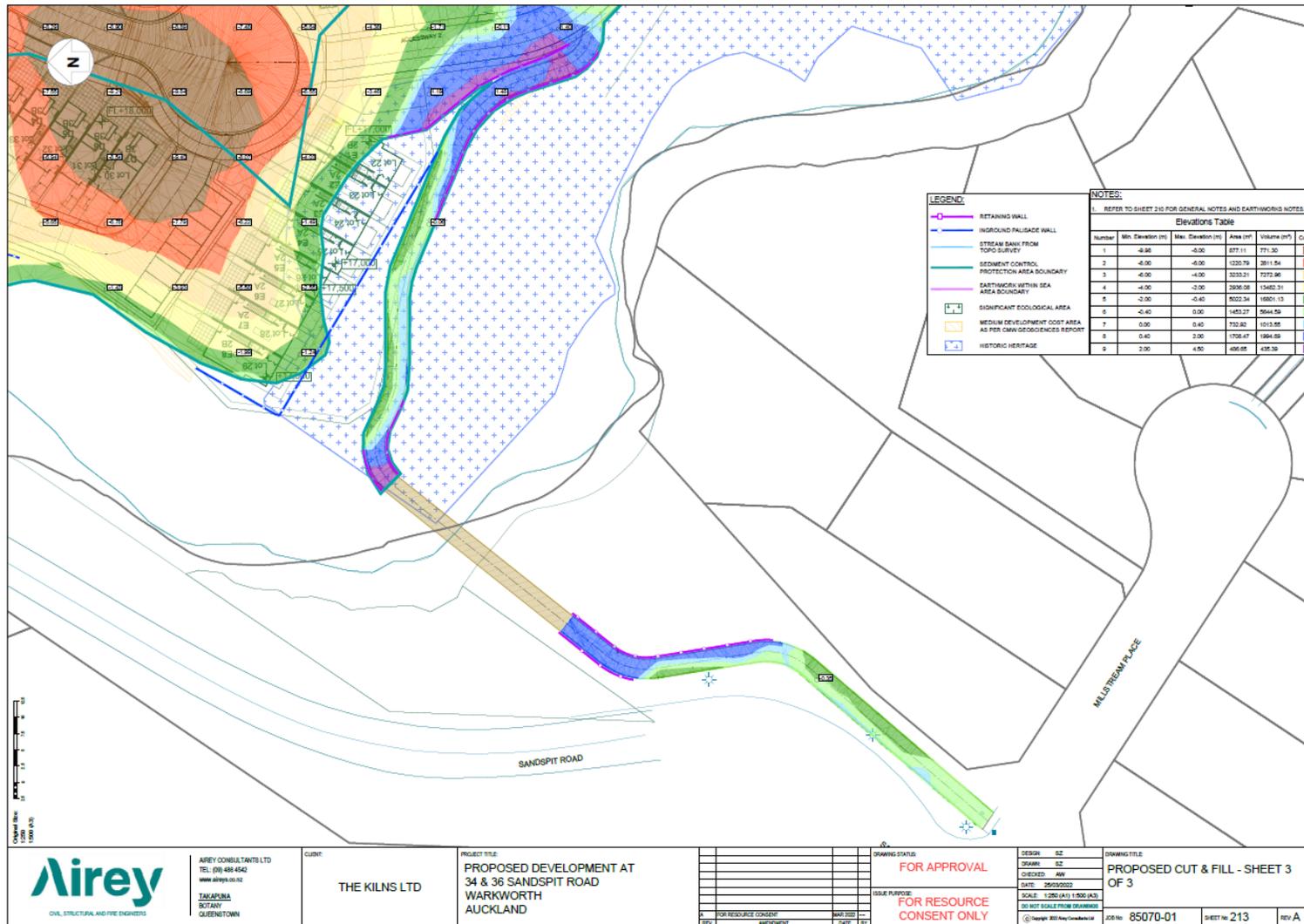


Figure 62. Historic Heritage Overlay Extent of Place earthworks detail - west (Airey and Buckton Consulting Surveyors Ltd March 2022)

9.5 Esplanade and Historic Reserves

A future esplanade reserve is provided for in the Subdivision Consent application, fronting onto Vipond's creek, Mahurangi River and an unnamed stream. This is shown in Figure 63 and Figure 64 in relation to the Historic Heritage Overlay extent of place. Additionally, a historic reserve is proposed south of the roadway, to incorporate the recorded tramway and cutting (Figure 65).

The following archaeological features which are associated with the lime works will be located within the proposed esplanade and historic reserves:

- Three kilns cut into the cliff face adjacent to the riverbank;
- Broad flat terrace located below the kilns, adjacent the river;
- Timber wharf remains located within the riverbank;
- Track running north from the river terrace up the slope to the remainder of the site;
- Northern end of cutting for the tramway; and,
- Over one third of the undefined limestone 'quarry pit' area.

The applicant has proposed a pedestrian and cycle connection at the southern end of the site to connect to the existing pedestrian network. This gives effect to the WSP 'greenway routes' recommendations and other Mahurangi River walkway proposals, to provide public walkways/cycleways along the northern side of the river, adjacent to the subject property. The plan of the proposed public access route is shown in Figure 65.

Also being considered are public access and interpretation opportunities for the Combes/Daldy lime works site. Associated with the walkway/cycleways this is opportunity for infrastructure to be constructed, that enables safe public access to the visible remains of the archaeological site (such as the kilns and/or tramline), heritage interpretation panels and viewing areas. This proposal therefore practically develops opportunities for public access and interpretation options for the Lime kilns previously investigated in 2020²⁸.

²⁸ Salmond Reed Jan 2020

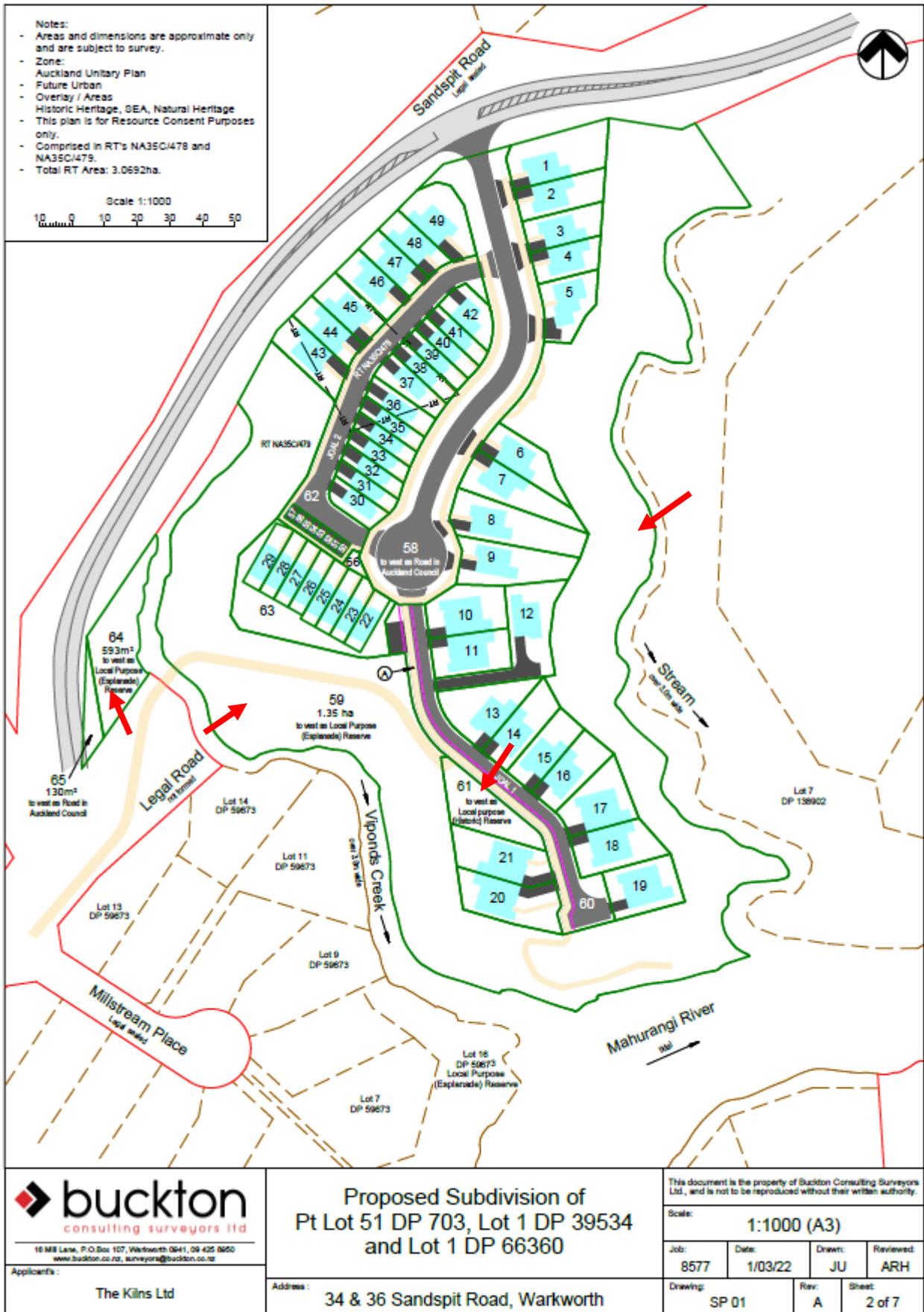


Figure 63. Location of Esplanade and Historic Purpose Reserves, arrowed (Buckton surveyors Ltd.)



Figure 64. Overlay of topographic survey with proposed reserves (base maps by Buckton surveyors Ltd)

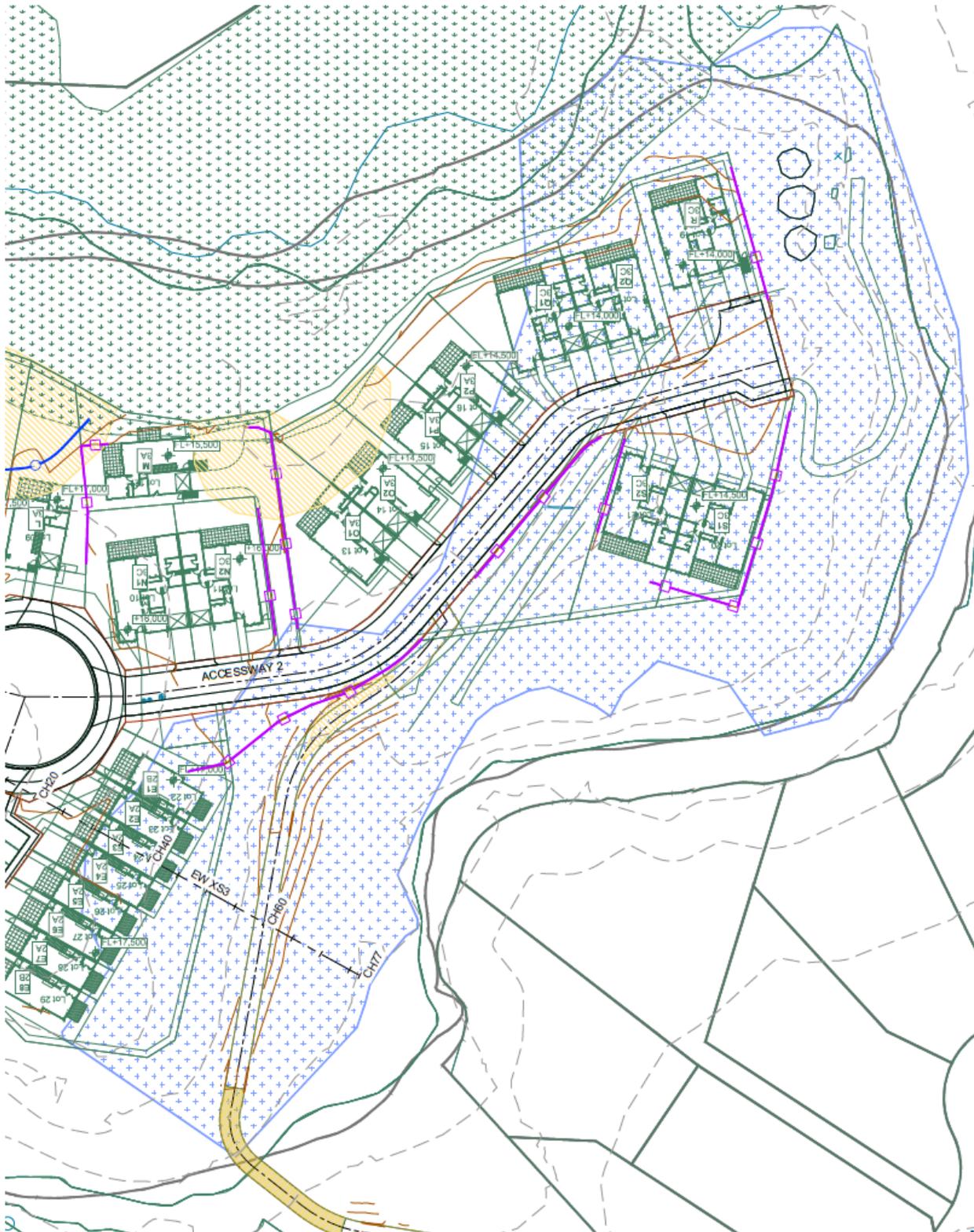


Figure 65. Part plan showing the proposed bridge and footpath access to the subject property (yellow) and retaining walls (purple) (Airey Consultants Drawing 85070-01-200-Rev A; March 2022)

10 HISTORIC HERITAGE ASSESSMENT OF EFFECTS

10.1 Relationship to the PPC

With reference to the PPC, The four options for the proposed amendment to the extent of place for the Combes/ Daldy Lime works (as described in Section 9.4 of the PPC assessment report) are:

- Option 1 – ‘No change’ extent of place
- Option 2 – Exclude ‘Quarry Pit’ non-primary feature
- Option 3 – Confirmed ‘physical’ extent of place
- Option 4 – ‘Representative’ extent of place

This assessment considered the Auckland Council methodology for evaluation of historic heritage places and the definitions set out in the AUP, particularly RPS Policies B5.2.2 (2):

(2) Define the location and physical extent of a significant historic heritage place, having considered the criteria in Policy B5.2.2 (1) to identify:

- (a) the area that contains the historic heritage values of the place; and
- (b) where appropriate, any area that is relevant to an understanding of the function, meaning and relationships of the historic heritage values.

When considering the four options, it is noted that the Historic Heritage Overlay provisions in Section D17 of the AUP will be unchanged as a result of the PPC and the Combes/Daldy Lime works is still identified as a Category B historic heritage place in Schedule 14.1. The following PPC considerations are the same across each option:

- No change to the Historic Heritage RPS or Section D17 Historic Heritage Overlay provisions;
- No primary features would be adversely affected by the subdivision, which retains all identified heritage features in the Overlay for protection, including:
 - Three kilns cut into the cliff face adjacent to the riverbank;
 - Broad flat terrace located below the kilns, adjacent the river;
 - Timber wharf remains located within the riverbank;
 - Track running north from the river terrace up the slope to the remainder of the site; and,
 - The cutting for the tramway and associated features.
- The only variance between the options is the degree to which areas with unconfirmed archaeological potential and the undefined quarry area are included.
- Additional control of development through the establishment of an esplanade reserve directly owned and controlled by Auckland Council is unaltered;
- The AUP accidental discovery of archaeology rules apply regardless of the Overlay; and,
- Alternative methods of managing effects of development on archaeological sites through the provisions of the HNZPTA 2014 are unaffected. These apply to the subject property regardless of the extent of overlay established in the AUP.

This is a relevant factor because the areas with no confirmed historic heritage features cannot be clearly demonstrated to be part of the physical extent of the site, based on current information. In these locations, effects are assessed against the *potential* for subsurface archaeological remains to

be present, rather than actual impact. For the purposes of this assessment however, the effects are considered as they relate to the current, notified extent of place (PPC Option 1).

10.2 Assessment Method

The proposed works will physically affect the Extent of Place of a Category B historic heritage place (Combes / Daldy Lime works site), as well as altering the setting of the place. These effects may be direct or indirect, and temporary or permanent in nature. A discussion as to the nature (adverse, neutral, or beneficial); level (less than minor, minor, moderate, significant, critical); and permanence (temporary, permanent) of any identified effects is provided below, based on the methodology for assessment set out in Appendix 4. Where appropriate, conditions for enhancing beneficial effects, or avoiding, remedying or mitigating adverse effects on historic heritage, are provided (also see recommendations below). The main activities which will affect the Extent of Place are grouped into the following categories:

- Physical Effects
- Temporary Effects (Construction)
- Effects on setting (development)
- Cumulative Effects (e.g. arising from multiple related consents)
- Operational/use Effects

The potential effects of these activities, and any residual effects following adoption of mitigation opportunities, are discussed and summarised in Table 3 below.

Physical Effects

Physical changes to the Combes / Daldy historic heritage place include, as the principal elements:

- earthworks grading, recontouring, retaining, and installation of infrastructure for JOAL 2 primarily along the northern edge of the extent of place;
- retaining structures and fill deposits to the south of Lots E1-E8, part of JOAL 1 and associated retaining palisade wall;
- the proposed new pedestrian path will cross the area of the possible quarry pit, before running up to meet the north-western terminus of the tramway cutting;
- House locations and driveways for Lots Q1, Q2, R, S1 and S2; and,
- Pedestrian path providing access to river waterfront and viewing opportunity for the lime kilns.

The site is recognised for its physical attributes, technological values and knowledge values, and there is potential for these categories to be adversely affected by the proposed physical changes.

Where earthworks are occurring as cuts, they will remove any subsurface features that may potentially be present. Based on current evidence, the areas of the subject site that may be affected by cut earthworks are considered to have low-moderate potential for features to survive, and therefore low potential to contribute to knowledge values. The adverse impact on either recorded or potential archaeological features is assessed as low. This is because considerable effort has been made through design to avoid significant impacts on the recorded primary features of most value (the lime kilns, boat landing and access, and tramway cutting). House sites within the extent of

place have been deliberately located where little archaeological evidence relating to the lime works site has been revealed, or in the case of the possible quarry area, where there is relatively low potential for significant features to survive. Additionally substantive areas of possible quarry are avoided through creation of esplanade reserve.

Where earthworks are occurring as fills, rather than by cutting down, there is opportunity to preserve any subsurface features *'in situ'*. The main area of opportunity for preservation *in situ* of recorded archaeological features is at the western end of the tramway terminus where JOAL 2 turns southward and runs across the recorded alignment of the tramway. It is recommended that appropriate geotextile is laid in these locations, then clean neutral sand as proposed in the Earthworks diagrams, prior to compacting for road and paving surfaces. This will assist in protecting any subsurface features that may be present.

In areas where palisades or retaining walls are required, there will be a combination of drilling or driving for retaining piles on linear alignments, and then backfill and compaction of ground. Other works such as laying of silt fences and service utilities may also require linear trenching. It will be possible to monitor these locations in case archaeological material is revealed. Due to the typically narrow and linear nature of such earthworks, the potential to adversely impact on specific features of significance is assessed as low.

The adverse effects from physical effects of the proposal on physical attributes, knowledge values and technological values are therefore assessed as little/minor, based on the methodology described in Appendix 4.

There is opportunity for archaeological monitoring during earthworks to occur, so that if any previously undetected features are revealed, they may be recorded. Any knowledge potential accrued from archaeological recording and analysis would contribute to the specific history of the site, and potentially to the wider context of settlement and industrial activity on the Mahurangi River.

In this way, adverse effects arising from physical modification of the site may be mitigated through *'preservation by record'*. Information gained through this process will be reported on, and can be used to further inform residents and visitors to the site, through interpretation opportunities.

If mitigation recommendations are adopted, the residual adverse effects of physical changes are assessed as being negligible / less than minor.

The physical changes arising from the proposal will not result in a reduction of historical association as the site will continue to be associated through physical links to Combes and Daly, and the early history of both Warkworth and the arrival of industrial activities along the Mahurangi river. Similarly, there is no adverse effect on social values identified. In fact the physical changes to the site, including specifically the creation of the pedestrian cycle/footpath, will provide public access where this was not possible previously. This is assessed as a high beneficial impact, which will generate potentially significant beneficial effects for social values.

The adverse impact on context values is assessed as negligible. This is because the relationship between the subject site and nearby contemporary historical sites in Warkworth, as well as sites associated with lime production regionally, is maintained.

These methods will, if adopted, reduce permanent adverse effects on the historic heritage values of the site, and any new information gained from archaeological monitoring and recording will potentially enhance knowledge values and social values through publication and interpretation.

Temporary Effects including Construction vibration effects

During construction works there is a potential risk for accidental damage to occur to existing fabric of heritage value. This is typically the situation when modification of an existing historic heritage place occurs, and can be appropriately addressed through development and application of a Historic Heritage Construction Management Plan (HHCMP) or other detailed construction methodology which identifies and protects identified heritage features through screening, hoarding, control and monitoring of machine and heavy plant, etc. In this case, the erection of lightweight site perimeter fencing (e.g. waratahs and hi-visibility netlon fencing) and control of vehicle routes is likely to provide sufficient definition so that accidental damage may be easily avoided. This can be augmented by information signage and toolbox talks describing and identifying features to be avoided.

Where areas of rock/limestone removal are proposed, there is limited potential for vibration effects from construction activities to impact on identified features. Activities such as impact piling and rock breaking, have the potential to generate vibration effects to sensitive heritage structures that lie within the avoidance distances set out the AUPOP. In this instance, the identified heritage features of the site are not considered to be particularly sensitive, largely consisting of mass earthworks. The possible exception to this is the lime kilns, where they are degraded, and loose kiln lining is present.

High impact construction activities are not anticipated in the vicinity of the limekilns, but if for some reason this was to occur, a construction noise and vibration assessment (CNVA) is recommended, which considers the potential for cosmetic damage to occur as a result of vibration according to methodology required by the AUPOP²⁹.

It is assumed that in the event of any accidental damage arising from the proposed works, remediation to the existing identified features will be undertaken as 'like-for-like' repair and in accordance with good practice conservation principles (e.g. New Zealand ICOMOS Charter). Maintenance and repair in this manner is a permitted activity under D17.4.1 (A6) of the AUPOP provisions and would result in no adverse effects to heritage features.

Effects on the setting of historic heritage places

Section D17.1 of the AUPOP defines the setting of a historic heritage place as follows:

Setting of a historic heritage place

The setting of a historic heritage place includes elements of the surrounding context beyond the identified extent of place within which a historic heritage place is experienced. The setting of a historic heritage place includes the sea, sky, land, structures, features, backdrop, skyline and views to and from the place. It can also include landscapes, townscapes, streetscapes and relationships with other historic heritage places which contribute to the value of the place.

²⁹ German Standard DIN 4150 3:1999 "Structural Vibration - Effects of Vibration on Structures"

There will be a temporary, but moderately long period of change to the setting of the historic heritage place as a result of the enabling and construction works, which includes the construction of roads, infrastructure and housing developments. These temporary conditions are an expected element in the context of the proposal, and can be managed through controls on hours of working, noise, dust etc. The subdivision includes options for staging of development, which may also assist in managing these temporary experiential changes.

On completion, 49 new dwellings with associated lots, roads and a new pedestrian bridge and path will be created, and this will permanently alter the setting of the Combes / Daldy Lime works site and nearby historic heritage places on or near the river opposite the site. This wider landscape is described in more detail on the urban design assessment. This has potential to affect aesthetic or landmark values associated with historic heritage places.

In this case, the Combes / Daldy historic heritage place is not recognised for aesthetic (G) or landmark values. The adverse effects of the development on setting are therefore limited, and further reduced through retention of the existing mature vegetation within the esplanade reserves, which retains a significant portion of the current setting. Any adverse effect from development is particularly limited for nearby sites which are located externally to the project area on the southern side of the river. As noted above, none of the nearby scheduled historic heritage places are recognised for their aesthetic values, and they do not currently have a strong visual interrelationship with the Combes / Daldy Lime works site in any case.

Use effects on built heritage including indirect effects on nearby historic heritage places

Once works are completed, the proposal will not result in any adverse change of use, or generate long-term adverse effects to other built heritage places within the vicinity. The proposed vesting into public local reserve, and the associated and public use opportunity this entails, is considered the optimum use for this location with regard to the long-term retention of historic heritage values.

Users, visitors and occupiers of nearby historic heritage places in Warkworth will have an increased connection to the historical context of the Mahurangi River, through improved public access. This generates significant potential to improve and enhance community social values and understanding of these places as being connected to the historical core of Warkworth, and to the wider context of lime and cement production along the Mahurangi River.

The strength of these beneficial effects relies on the provision of public access and interpretation of the primary features of the Combes / Daldy Lime works site. A condition regarding the creation of formed path to the lime kilns, and interpretation panels at the lime kilns, and at a point along the footpath adjacent the tramway cutting, is considered appropriate as the minimum required to realise this potential benefit.

Cumulative effects

No cumulative adverse effects from related consent applications are identified in this proposal.

Table 3. Summary Assessment of Effects On Historic Heritage Values – Combes Daldy Lime Works Site

Heritage Value	Assessed Value*	Key Activities	Adverse Impact	Comment	Level of Adverse Effect (Impact x Value)**	Duration	Proposed Mitigation	Residual Effect	Beneficial Impact	Comment	Level of Beneficial Effect (Effect x Value)**	Duration	'On Balance' overall Effect
Historical (A)	Considerable	Earthworks and infrastructure Subdivision and development of 49 lots Public Accessibility through creation of pedestrian path/cycleway	No Change	No change to primary physical links with site and period of use	Nil	Permanent	N/A	N/A	High	Public Accessibility and ability to appreciate historical associations through creation of pedestrian path/cycleway	Moderate/Significant	Permanent	Moderate Permanent Beneficial
Social (B)	Considerable	Earthworks and infrastructure Public Accessibility through creation of pedestrian path/cycleway	No Change	No adverse change identified	Nil	Permanent	N/A	N/A	High	Public Accessibility and ability to appreciate historical associations through creation of pedestrian path/cycleway	Moderate/Significant	Permanent	Moderate Permanent Beneficial
Mana Whenua (C)	None identified	Earthworks and infrastructure Public Accessibility through creation of pedestrian path/cycleway	No Change	No adverse change identified	Nil	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Knowledge (D)	Considerable (Low to moderate in areas of development)	Earthworks and infrastructure Public Subdivision and development of 49 lots Accessibility through creation of pedestrian path/cycleway	Low	Some potential for loss, but low risk of significant impact due to deliberate design	Little / Minor	Permanent	Archaeological monitoring and recording; Preservation 'in situ' where practicable Interpretation opportunities	Negligible / less minor	Moderate	Knowledge gathering and dissemination of information. Opportunity to inform residents and visitors with increased knowledge of Lime works site	Moderate / More Minor	Permanent	Moderate Permanent Beneficial
Technological (E)	Considerable	Earthworks and infrastructure Public Subdivision and development of 49 lots Accessibility through creation of pedestrian path/cycleway	Low	Some potential for loss, but low risk of significant impact due to deliberate design	Little / Minor	Permanent	Archaeological monitoring and recording; Preservation 'in situ' where practicable Interpretation opportunities	Negligible / less minor	Low	Some Knowledge gathering and dissemination of information. Opportunity.	Little / Minor	Permanent	Little Permanent Beneficial
Physical Attributes (F)	Considerable	Earthworks and infrastructure Subdivision and development of 49 lots Public Accessibility	Low	Some potential for loss, but low risk of significant impact due to deliberate design	Little / Minor	Permanent	Archaeological monitoring and recording; Preservation 'in situ' where practicable	Negligible / less minor	Low	Knowledge gathering and dissemination of information. Opportunity to inform residents and visitors with	Little / Minor	Permanent	Little Permanent Beneficial

		through creation of pedestrian path/cycleway					Interpretation opportunities			increased knowledge of Lime works site			
Aesthetic (G)	Little-Moderate	Earthworks and infrastructure Public Subdivision and development of 49 lots Accessibility through creation of pedestrian path/cycleway	Low-moderate depending on specific location within subject site	The open nature of the site as it is currently experienced will change	Negligible / Less Minor to Little/Minor depending on specific location within subject site	Permanent	None required, though control of materials for new developments will further reduce potential adverse impacts	Negligible / less minor	Low	Opportunity for improvements to setting and management of vegetation	Little / Minor	Permanent	Negligible Permanent Adverse
Context (H)	Considerable	Earthworks and infrastructure Public Subdivision and development of 49 lots Accessibility through creation of pedestrian path/cycleway	No Change	No essential change to primary contextual links with Warkworth, period of use, or relationship to other lime works in the region	Nil	Permanent	None required	Negligible / less minor	Low	Knowledge gathering and dissemination of information. Opportunity to inform residents and visitors with increased knowledge of Lime works site	Little / Minor	Permanent	Little Permanent Beneficial

*based on Unitary Plan RPS Criteria and evaluation rollover information provided by Auckland Council. Highlighted values are those for which the place is recognised in Schedule 14.1

** based on Assessment Methodology set out in Appendix

11 HISTORIC HERITAGE AUP PROVISIONS

This section of the report reviews the information provided by the applicant for the PPC and considers this regarding the Auckland Council Auckland Unitary Plan Operative in Part (AUPOP) historic heritage provisions. When preparing or changing a district plan, this must give effect to any Regional Policy Statement (RPS) and have regard to any proposed RPS.

11.1 AUPOP B5.2.1 Regional Policy Statement: Built Heritage and Character – Objectives

The RPS identifies a number of issues of regional significance. Section B5 Ngā rawa tuku iho me te āhua - Historic heritage and special character contains two key objectives:

AUP B5.2.1 Regional Policy Statement: Built Heritage and Character – Objectives

- (1) Significant historic heritage places are identified and protected from inappropriate subdivision, use and development.
- (2) Significant historic heritage places are used appropriately and their protection, management and conservation are encouraged, including retention, maintenance and adaptation.

Comment

The AUP (OP) protects the Category B Combes/Daldy Lime works site (Schedule 14.1; ID 569) within a Historic Heritage Overlay. Further research, fieldwork and assessment has been carried out to ensure the confirmed features of the site are accurately identified. The site will continue to be used and managed appropriately as a reserve, and through the provisions of the AUP Historic Heritage Overlay.

11.2 AUPOP B5.2.2. Regional Policy Statement – Policies

The RPS objectives are supported by policies B5.2.2 (1) to (9). The identification and evaluation of historic heritage places is of relevance to the PPC, in particular the definition for extent of place (Policy 2):

AUP B5.2.2. Regional Policy Statement – Policies

- (2) Define the location and physical extent of a significant historic heritage place, having considered the criteria in Policy B5.2.2 (1) to identify:
 - (a) the area that contains the historic heritage values of the place; and
 - (b) where appropriate, any area that is relevant to an understanding of the function, meaning and relationships of the historic heritage values.

Protection of scheduled significant historic heritage places is also relevant (Policy 7):

AUP B5.2.2. Regional Policy Statement – Policies

- 7) Avoid where practicable significant adverse effects on significant historic heritage places. Where significant adverse effects cannot be avoided, they should be remedied or mitigated so that they no longer constitute a significant adverse effect.

Comment

The current extent of place for the Combes/Daldy Lime works site is based on an area of archaeological potential, not the confirmed presence of its physical extent and historic heritage values (as set out in AUP policy B5.2.2.(2)). Additional evaluation has been carried out those areas where development is planned have demonstrated little potential for archaeological features

associated with the lime kilns to be present, other than the tramway alignment. Where earthworks are occurring in these locations, this typically involves importing fill to raise ground levels, rather than cutting down. There is therefore the possibility of retaining subsurface features *in situ*. Through careful design, significant adverse effects the historic heritage place can generally be avoided. In some small portions of the site where this is not the case, removal of potential subsurface archaeological features can be mitigated through archaeological recording.

11.3 AUP D17 Historic Heritage Overlay

The AUP contains objectives, policies and rules to protect significant historic heritage from inappropriate subdivision, use, and development. The AUP methods to achieve this protection are primarily focused on the Historic Heritage Overlay (Chapter D17). Schedule 14.1 identifies the historic heritage places that are subject to the Historic Heritage Overlay. However, regarding archaeological sites, such as the Combes/ Daldy Lime works it is important to note that there are other methods in the Plan. In the event of discovery of sensitive material which is not expressly provided for by any resource consent or other statutory authority, the Unitary Plan accidental discovery rule (Appendix 2) must be followed, and this includes archaeological sites (AUP Sections E11.6.1 and E12.6.1). Furthermore, the HNZPTA 2014 must be complied with (Section 13). These processes are statutory requirements which will ensure that any effects are avoided, remedied or mitigated.

The objectives and policies of the relevant zones, overlays and Auckland-wide chapters of the AUP apply to the plan change area. This means that the Historic Heritage Overlay provisions are unchanged. The relevant existing Historic Heritage Overlay objectives, policies and assessment criteria are set out below.

Activity Tables

Table D17.4.1 Activity table – Activities affecting Category A, A* and B scheduled historic heritage places includes a comprehensive list of rules and activities to manage scheduled Historic Heritage Places. This includes development; relocation; maintenance and repair; modification and restoration; buildings and structures; seismic strengthening; signs and ancillary structures; subdivision; and, use.

Furthermore, the Combes/ Daldy Lime works site has additional archaeological rules identified in Schedule 14.1. This means that Table D17.4.2 Activity table - Activities subject to additional archaeological rules applies within the Historic Heritage Overlay. This has additional rules for use, development and archaeological investigation. All activities listed as permitted in Table D17.4.2 must comply with the permitted activity standards (D17.6. Standards).

The proposed subdivision development includes new infrastructure with associated signage and utilities, and new structures and buildings within a primary feature. Because the site is identified as an archaeological site, archaeological monitoring and investigation during earthworks is anticipated. New network utilities and services are to be established where archaeological controls apply. In relation to historic heritage, the following activities apply:

Table D17.4.1 Activity table – Activities affecting Category A, A* and B scheduled historic heritage places [rcp – where reference is made in Chapter F to these rules applying]

		Primary feature Category A places	Primary feature Category A* places	Activities within the scheduled extent of place of Category A and A* places	Primary feature Category B places	Activities within the scheduled extent of place of Category B places	Features identified as exclusions
Modification and restoration							
(A9)	Modifications to, or restoration of, buildings, structures, fabric or features of a scheduled historic heritage place, except where provided for as a permitted, controlled or restricted discretionary activity in another rule in this overlay.	RD	RD	RD	RD	RD	P
Buildings and structures							
(A10)	New buildings or structures	D	D	D	D	RD	
(A15)	Signs not otherwise provided for as a permitted activity	RD	RD	RD	RD	RD	
Subdivision							
(A17)	Subdivision of land within the scheduled extent of place	D	D	D	D	D	

(A19)	Use of a scheduled historic heritage place for an activity that is not otherwise provided for in the underlying zone or precinct, or not otherwise provided for in Tables D17.4.1 to D.17.4.3 Note – this rule does not override any prohibited activity	D	D	D	D	D	D
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Table D17.4.2 Activity table – Activities subject to additional archaeological rules [rcp/dp]

		Primary feature Category A places	Primary feature Category A+ places	Activities within the scheduled extent of place of Category A and A+ places	Primary feature Category B places	Activities within the scheduled extent of place of Category B places	Features identified as exclusions
Development							
Archaeological investigation							
(A25)	Archaeological investigation not otherwise provided for as a permitted activity	RD	RD	RD	RD	RD	P

Table E26.8.3.1 Activity table - Network utilities and electricity generation – Historic Heritage Overlay

Activity	Activity status
Network utilities and electricity generation facilities	
(A130) Network utilities and electricity generation facilities that do not comply with permitted activity standards in E26.8.5.1	RD

AUP Section D17.2. Objectives

AUP Section D17.2 – Historic Heritage Overlay Objectives

- (1) The protection, maintenance, restoration and conservation of scheduled historic heritage places is supported and enabled.
- (2) Scheduled historic heritage places are protected from inappropriate subdivision, use and development, including inappropriate modification, relocation, demolition, or destruction.
- (3) Appropriate subdivision, use and development, including adaptation of scheduled historic heritage places, is enabled.

Comment

The proposal provides long-term opportunity for maintenance and care of the key archaeological features identified within the subject site, by vesting them into public reserve. This will allow greater opportunity for restoration and maintenance in the future.

The subdivision proposal has been designed following an iterative process, whereby roads, paths and other structures within the extent of place have been located to avoid key features of the site, and where site investigation has determined that there is little potential for significant archaeological subsurface remains to be present.

In this regard, the subdivision proposal can be considered an appropriate one, and therefore it would be enabled by this policy. In particular, it retains the key features of the site in one ownership (public entity), which facilitates long-term management and conservation.

AUP Section D17.3. Policies*Use and development, including adaptation*

- (3) Enable the use, development and adaptation of scheduled historic heritage places where:
 - (a) it will not result in adverse effects on the significance of the place;
 - (b) it will contribute to the ongoing maintenance and enhancement of the historic heritage values of the place;
 - (c) it is in accordance with good practice conservation principles and methods;
 - (d) it will not result in cumulative adverse effects on the historic heritage values of the place;
 - (e) it will support the long-term viability, retention or ongoing use of the place; and
 - (f) it will not lead to significant adverse effects on the surrounding area.

Comment

The assessment of effects considers that there are very limited adverse effects likely to occur, and there is potential for highly beneficial effects to occur, through improved public access. Cumulative adverse effects are avoided, and the long-term viability of the place is engaged through creation of public reserve, in one ownership, which is good conservation practice.

(4) Enable the use of scheduled historic heritage places, whether or not the use is otherwise provided for in the zone, where it does not detract from the heritage values of the place and will not otherwise have significant adverse effects.

Comment

None of the historic heritage values for which the place is recognised will be adversely affected in such a way that the Combes Daldy Lime works site will be degraded. The proposed use is not detracting in any way.

(5) Support use, development or adaptation appropriate to scheduled historic heritage places through such measures as:

- (a) reducing or waiving consent application costs;
- (b) granting consent to infringement of the development standards for underlying zones and Auckland-wide rules where this does not result in significant adverse effects;
- (c) providing funding, grants and other incentives;
- (d) providing expert advice; or
- (e) providing transferable development rights.

Comment

Although the proposal to develop the site is a substantive one involving considerable change to the property, most of this change is occurring elsewhere on the site. The proposal has been carefully designed to avoid significant adverse effects on the key identified features.

(7) Require the assessment of the effects for proposed works to scheduled historic heritage places, including where one or more places are affected, to address all the effects on:
the heritage values of the place/s;
the significance of the place; and,
the setting and the relationship between places.

Comment

This report fulfils this requirement.

Modifications, restoration and new buildings within historic heritage places

(8) Maintain or enhance historic heritage values by ensuring that modifications to, or restoration of, scheduled historic heritage places, and new buildings within scheduled historic heritage places:

- (a) minimise the loss of fabric that contributes to the heritage values and level of significance of the place;
- (b) do not compromise the ability to interpret the place and the relationship to other heritage places;
- (c) complement the form, fabric and setting which contributes to, or is associated with, the heritage values of the place;
- (d) retain and integrate with the heritage values of the place;
- (e) avoid significant adverse effects, including from loss, destruction or subdivision that would reduce or destroy the heritage values of the place; and
- (f) avoid, remedy or mitigate adverse effects on the heritage values of the place.

Comment

Each building location has been arranged to avoid impact on recorded archaeological features as far as is practicable. In combination with creation of the areas of reserve and public access to the kilns, this approach allows greater opportunity to appreciate and understand the heritage values of the place than has previously existed. This accrues potentially highly beneficial effects, and any minor adverse effects can be further avoided through preservation *in situ* or mitigated through archaeological recording and site interpretation.

- (9) Enable modifications to, or restoration of, scheduled historic heritage places, and new buildings within scheduled historic heritage places where the proposal:
- (a) will not result in adverse effects on the significance of the place;
 - (b) will contribute to the ongoing maintenance and enhancement of the historic heritage values of the place;
 - (c) is in accordance with good practice conservation principles and methods;
 - (d) will not result in cumulative adverse effects on the historic heritage values of the place; and
 - (e) will contribute to the long-term viability, retention or ongoing functional use of the place

Comment

The proposal avoids cumulative effects and contributes to the long-term viable upkeep of the place, through vesting of key features within publicly owned reserves, and through a comprehensive development strategy that has been designed to avoid significant impact on recorded features. There are highly beneficial opportunities to enhance the heritage values of the place through creation of public access to the tramway, limekilns and riverbank areas.

- (10) Support modifications to, or restoration of, scheduled historic heritage places that will do any of the following:
- (a) recover or reveal heritage values of the place;
 - (b) remove features or additions that compromise the heritage values of the place; or
 - (c) secure the long-term viability and retention of the place.

Comment

This subdivision proposal achieves (a) and (c) through the creation of the reserve areas and provision of permanent public access. The proposed modifications to the place can be supported on this basis.

Subdivision

- (23) Provide for the subdivision of scheduled historic heritage places only where:
- (a) the subdivision will support use and development that is complementary to the heritage values of the place;
 - (b) all the potential effects of the subdivision and any associated development on the heritage values of the place have been considered and any adverse effects on these values are avoided to the greatest extent possible, and any other effects are remedied or mitigated; and
 - (c) the subdivision contributes to the retention of the place.

Comment

The subdivision proposal includes the creation of public access and pathway to the tramway cutting and the lime kilns themselves, providing a considerable opportunity to enhance the appreciation and use of the place. This proposal has been designed in such a manner that adverse effects on historic heritage values are largely avoided. Where minor adverse effects cannot be avoided, they can be further mitigated, and by vesting the key features in public ownership, the long-term retention opportunity is greatly enhanced.

Demolition or destruction

(13) Avoid the total or substantial demolition or destruction of features (including buildings, structures, or archaeological sites) within scheduled historic heritage places where it will result in adverse effects (including cumulative adverse effects) on the overall significance of the scheduled historic heritage place to the extent that the place would no longer meet the significance thresholds for the category it has been scheduled.

Comment

The potential adverse effects of the proposal are assessed above. They are at a level of significance in any category, such that the place would no longer meet significance thresholds, because all of the key features which contribute to the place are protected and retained, either complete or substantively so.

(14) Avoid the total or substantial demolition or destruction of:

- (a) the primary features of Category A* and Category B scheduled historic heritage places;
- (b) the non-primary features of Category A and A* scheduled historic heritage places; and contributing features within Historic Heritage Areas; unless:
 - (i) the demolition or destruction is required to allow for significant public benefit that could not otherwise be achieved; and
 - (ii) the significant public benefit outweighs the retention of the feature, or parts of the feature, or the place; or
 - (iii) the demolition or destruction is necessary to remove a significant amount of damaged heritage fabric to ensure the conservation of the scheduled historic heritage place.

Comment

Schedule 14.1 states that the entire extent of place 'except the quarry pit' is the primary feature of the Combes Daldy Lime works site. The majority of the extent (excluding the quarry pit area) is retained within public reserve. Where modifications do occur for new house sites, previous investigation has demonstrated little archaeological potential, and little adverse effect on heritage values as a result. Further effects can be avoided or mitigated through detailed design, or through archaeological recording if this is necessary. Where new works occur for public pedestrian access in the proposed reserves, this is demonstrably a significant public benefit, and will additionally provide enhancement and interpretation opportunities, as well as strategic long-term maintenance opportunities.

Temporary activities

(21) Provide for signs associated with temporary activities within scheduled historic heritage places where any adverse effects on the heritage values of the place are avoided, remedied or mitigated.

(22) Provide for freestanding displays, exhibits and temporary structures within scheduled historic heritage places where any adverse effects on the heritage values of the place are avoided, remedied or mitigated.

Comment

Free-standing temporary structures such as site cabins, hoarding and construction signage can be readily accommodated and managed through application of a historic heritage construction management plan.

Infrastructure

(25) Enable the establishment of network utilities and small-scale electricity generation facilities within scheduled historic heritage places where all of the following apply:

- (a) there is a functional need or operational constraint that necessitates their location within a scheduled historic heritage place;
- (b) significant adverse effects on the heritage values of the place are avoided where practicable; and
- (c) other adverse effects are avoided, remedied or mitigated.

Comment

There will be a functional need to service new properties established by the subdivision development. Significant adverse effects are avoided through deliberate design, and any minor adverse effects may be either further avoided or mitigated.

(26) Avoid the relocation and total or substantial demolition or destruction of features within a scheduled historic heritage place to provide for network utilities and electricity generation facilities unless all of the following apply:

- (a) a functional need or operational constraint limits available alternatives;
- (b) there is no reasonable practicable alternative;
- (c) the infrastructure will provide a significant public benefit that could not otherwise be achieved; and
- (d) the adverse effects on the heritage values of a place are minimised to the extent practicable.

Comment

The relocation or destruction of key features is avoided, as utilities paths are designed to avoid these.

Assessment Criteria for Restricted Discretionary activities

Any restricted discretionary activity will be considered against the following assessment criteria:

D17.8.2. Assessment criteria

The Council will consider the relevant assessment criteria below for restricted discretionary activities:

(1) for restricted discretionary activities in Table D17.4.1 Activity table – Activities affecting Category A, A* and B scheduled places, Table D17.4.2 Activity table - Activities subject to additional archaeological rules and Table D17.4.3 Activity table – Activities in Historic Heritage Areas:

(a) whether the proposed works will result in adverse effects (including cumulative adverse effects) on the heritage values of the place and the extent to which adverse effects are avoided, remedied or mitigated;

(b) whether the proposed works will maintain or enhance the heritage values of the place, including by:

(i) avoiding or minimising the loss of fabric that contributes to the significance of the place;

(ii) removing features that compromise the heritage values of the place;

(iii) avoiding significant adverse effects on the place, having regard to the matters set out in B5 Historic heritage and special character;

(iv) complementing the form and fabric which contributes to, or is associated with, the heritage values of the place; and

(v) recovering or revealing the heritage values of the place.

(c) whether the proposed works will compromise the ability to interpret features within the place and the relationship of the place to other scheduled historic heritage places;

(d) whether the proposed works, including the cumulative effects of proposed works, will result in adverse effects on the overall significance of the place such that it no longer meets the significance

thresholds for which it was scheduled;

(e) whether the proposed works will be undertaken in accordance with good practice conservation principles and methods appropriate to the heritage values of the place;

(f) whether the proposal contributes to, or encourages, the long-term viability and/or ongoing functional use of the place;

(g) whether modifications to buildings, structures, or features specifically for seismic strengthening:

(i) consider any practicable alternative methods available to achieve the necessary seismic standard that will reduce the extent of adverse effects on the significance of the place; and

(ii) take into account the circumstances relating to the ongoing use and retention of the place that affect the level of seismic resilience that is necessary to be achieved.

(h) whether the proposed relocation of features, within or beyond scheduled extents of place, in addition to the criteria above;

(i) is necessary in order to provide for significant public benefit that could not otherwise be achieved; and

(ii) the significant public benefit outweighs the retention of the feature in its existing location within the extent of place.

Comment

The proposal is overall non-compliant, and in relation to historic heritage activities, subdivision and new buildings are a discretion activities. Therefore discretion is not restricted to the assessment criteria set out above. The criteria are in any case also addressed through the response to the D17 objectives and policies set out above.

11.4 Special information requirements and non-statutory considerations

In accordance with D17.9. Special information requirements, a heritage impact assessment is required for an application for resource consent for works affecting scheduled historic heritage places:

(1) An application for resource consent for works affecting scheduled historic heritage places must be accompanied by a heritage impact assessment that is commensurate to the effects of the proposed works on the overall significance of a historic heritage place, and taking into account whether the works affect a primary, non-primary, non-contributing or excluded site or feature.

Comment

This assessment document fulfils this requirement.

11.5 RPS Section B2 - Development capacity and supply of land for urban development

The structure plan process previously followed by Auckland Council has determined that the subject site is suitable for more intensive urbanisation than is currently developed. In relation to historic heritage values, there are also some relevant policies for the subdivision set out Section B2 of the regional policy statement, considered below.

B2.2.2 (3) Enable rezoning of future urban zoned land for urbanisation following structure planning and plan change processes in accordance with Appendix 1 Structure plan guidelines.

Comment

The Appendix 1 Structure plan guidelines include provisions for the preparation of historic heritage assessment reports and the guidelines notes that:

“The scale and detail of the investigation and reporting required needs to be at a level appropriate to the scale of the area subject to the structure planning process and the complexity of the issues identified by the process”³⁰.

This assessment report fulfils this requirement.

B2.3.2. Policies

(1) Manage the form and design of subdivision, use and development so that it does all of the following:

(a) supports the planned future environment, including its shape, landform, outlook, location and relationship to its surroundings, including landscape and heritage;

Comment

The subdivision plan has been especially cognisant of the historic heritage values of the place, and is deliberately designed around this. The proposal therefore provides for the relationship with the scheduled historic heritage place, including in the long-term.

³⁰ AUP RPS Appendix 1 Structure plan guidelines, Section 1.5

B2.4.2. Policies Residential intensification

(4) Provide for lower residential intensity in areas:

- (a) that are not close to centres and public transport;
- (b) that are subject to high environmental constraints;
- (c) where there are natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character; and
- (d) where there is a suburban area with an existing neighbourhood character.

Comment

This policy is structured to direct areas of lower density following a logical gateway test, where four criteria are to be met. For the subject site, Criteria (b) may be met, and Criteria (c) relating to historic heritage is certainly met, but in this instance the other two criteria are not met. The direction towards a lower density is not effectually engaged through this policy, because:

- (a) the subject site is both close to a town centre and to public transport, and
- (d) the existing character of the subject site is not suburban in nature, but sparsely developed.

B2.4.2. (5) Avoid intensification in areas:

- (a) where there are natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage or special character; or
- (b) that are subject to significant natural hazard risks; where such intensification is inconsistent with the protection of the scheduled natural or physical resources or with the avoidance or mitigation of the natural hazard risks.

Comment

The first part of this policy directs intensification to avoid the historic heritage place which is the area covered by Historic Heritage Overlay. Cognisant of this, proposed subdivision plan protects all the confirmed heritage features within the Historic Heritage Overlay. There will be some development by way of retaining structures within the extent of place where there are no confirmed features, but which may include the possible quarry location. These areas are largely avoided, however, and where this is not practicable effects may be further mitigated through recording.

11.6 Additional Auckland-wide provisions

If any archaeological remains were uncovered outside the Historic Heritage Overlay as part of future use and development within the plan change area, these Auckland-wide provisions will apply (Chapter E Auckland-wide, E11 and E12). The AUP accidental discovery rule requires landowners to cease works, secure the area and contact Auckland Council if any archaeological discovery is made during earthworks and an archaeological authority from Heritage NZ is not in place. The rule clearly sets out the process for enabling inspection by Auckland Council staff and the requirements that must be met before work can recommence, ensuring that management processes are in place in the AUP for archaeological discovery outside the AUP Historic Heritage Overlay. The relevant Regional and District earthworks provisions, set out in Chapters E11 and E12, are as follows:

Section E11 Land use – Regional:

Section E11.3 includes the following:

E11.2. Objectives [rp]

(1) Land disturbance is undertaken in a manner that protects the safety of people and avoids, remedies or mitigates adverse effects on the environment.

E 11.3. Policies

(1) Avoid where practicable, and otherwise mitigate, or where appropriate, remedy adverse effects on areas where there are natural and physical resources that have been scheduled in the Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character.

(2) Manage land disturbance to:

(a) retain soil and sediment on the land by the use of best practicable options for sediment and erosion control appropriate to the nature and scale of the activity;

(b) manage the amount of land being disturbed at any one time, particularly where the soil type, topography and location is likely to result in increased sediment runoff or discharge;

(c) avoid, remedy or mitigate adverse effects on accidentally discovered sensitive material; and

(d) maintain the cultural and spiritual values of Mana Whenua in terms of land and water quality, preservation of wāhi tapu, and kaimoana gathering.

Comment

This is achieved by the subdivision proposal in relation to historic heritage.

(3) Manage the impact on Mana Whenua cultural heritage that is discovered undertaking land disturbance by:

(a) requiring a protocol for the accidental discovery of kōiwi, archaeology and artefacts of Māori origin;

(b) undertaking appropriate actions in accordance with mātauranga and tikanga Māori; and

(c) undertaking appropriate measures to avoid adverse effects. Where adverse effects cannot be avoided, effects are remedied or mitigated.

Comment

The proposal will also require archaeological authority and there is opportunity here to establish protocols for accidental discovery. It is noted that The applicant has already engaged with Ngāti Manuhiri through the exploratory investigation, and no archaeological features of Māori origin have been identified to date. If no provision is in place under the HNZPTA 2014, then the Accidental discovery rules of the AUPOP will continue to apply (Appendix 2).

Section E12 Land use – District Plan:

E12.2. Objectives

(1) Land disturbance is undertaken in a manner that protects the safety of people and avoids, remedies or mitigates adverse effects on the environment.

E12.3. Policies

(1) Avoid where practicable, and otherwise, mitigate, or where appropriate, remedy adverse effects of land disturbance on areas where there are natural and physical resources that have been scheduled in the Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character.

(2) Manage the amount of land being disturbed at any one time, to:

(a) avoid, remedy or mitigate adverse construction noise, vibration, odour, dust, lighting and traffic effects;

(b) avoid, remedy or mitigate adverse effects on accidentally discovered sensitive material; and

(c) maintain the cultural and spiritual values of Mana Whenua in terms of land and water quality, preservation of wāhi tapu, and kaimoana gathering.

Comment

Significant adverse effects are avoided. Minor adverse effects to historic heritage values may be further avoided or mitigated through detailed design and archaeological recording. These policies are achieved by the subdivision proposal in relation to historic heritage.

(4) Manage the impact on Mana Whenua cultural heritage that is discovered undertaking land disturbance by:

(a) requiring a protocol for the accidental discovery of kōiwi, archaeology and artefacts of Māori origin;

(b) undertaking appropriate actions in accordance with mātauranga and tikanga Māori; and

(c) undertaking appropriate measures to avoid adverse effects, or where adverse effects cannot be avoided, effects are remedied or mitigated.

Comment

The proposal will also require archaeological authority and there is opportunity here to establish protocols for accidental discovery. It is noted that The applicant has already engaged with Ngāti Manuhiri through the exploratory investigation, and no archaeological features of Māori origin have been identified to date. If no provision is in place under the HNZPTA 2014, then the Accidental discovery rules of the AUPOP will continue to apply (Appendix 2).

Section E12.8.2. Assessment criteria

With regard to land disturbance, the Council will consider, in particular, the relevant assessment criteria below for restricted discretionary activities, as they relate to archaeological sites:

(1) all restricted discretionary activities:

(a) whether applicable standards are complied with;

(e) whether a protocol for the accidental discovery of kōiwi, archaeology and artefacts of Māori origin has been provided and the effectiveness of the protocol in managing the impact on Mana Whenua cultural heritage if a discovery is made

(m) the extent to which earthworks avoid, minimise, or mitigate adverse effects on any archaeological sites that have been identified in the assessment of effects.

Comment:

A recommendation of this report is that authority to modify an archaeological site is sought under the HNZPTA 2014. Authorities require protocols for discovery of koiwi, archaeological features or artefacts or Māori origin, and were this not in place, the Accidental discovery rules set out in the AUPOP continue to apply (Appendix 2).

As noted in this assessment, the key identified archaeological features of the site are largely avoided, and where small areas of the site cannot be recorded, any adverse modifications can be mitigated through archaeological recording.

Section E26 Infrastructure:

E26.2. Network utilities and electricity generation – All zones and roads

E26.2.1. Objectives [rp/dp]

(9) The adverse effects of infrastructure are avoided, remedied or mitigated.

E26.2.2. Policies [rp/dp]

(4) Require the development, operation, maintenance, repair, upgrading and removal of infrastructure to avoid, remedy or mitigate adverse effects, including, on the:

- (a) health, well-being and safety of people and communities, including nuisance from noise, vibration, dust and odour emissions and light spill;
- (b) safe and efficient operation of other infrastructure;
- (c) amenity values of the streetscape and adjoining properties;
- (d) environment from temporary and ongoing discharges; and
- (e) values for which a site has been scheduled or incorporated in an overlay.**

Comment

This is achieved by the subdivision proposal in relation to historic heritage, through creation of reserves and design of infrastructure to avoid recorded features as far as is practicable.

(5) Consider the following matters when assessing the effects of infrastructure:

- (a) the degree to which the environment has already been modified;
- (b) the nature, duration, timing and frequency of the adverse effects;
- (c) the impact on the network and levels of service if the work is not undertaken;
- (d) the need for the infrastructure in the context of the wider network; and
- (e) the benefits provided by the infrastructure to the communities within Auckland and beyond.

Comment

This is achieved by design of infrastructure to avoid recorded features as far as is practicable, and to cross over the tramway alignment where it has already been historically modified. The benefits arising from creation of public access to the reserve will also enhance the historic heritage values of the place in the future.

(6) Consider the following matters where new infrastructure or major upgrades to infrastructure are proposed within areas that have been scheduled in the Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character:

- (a) the economic, cultural and social benefits derived from infrastructure and the adverse effects of not providing the infrastructure;
- (b) whether the infrastructure has a functional or operational need to be located in or traverse the proposed location;
- (c) the need for utility connections across or through such areas to enable an effective and efficient network;
- (d) whether there are any practicable alternative locations, routes or designs, which would avoid, or reduce adverse effects on the values of those places, while having regard to E26.2.2(6)(a) - (c);
- (e) the extent of existing adverse effects and potential cumulative adverse effects;
- (f) how the proposed infrastructure contributes to the strategic form or function, or enables the planned growth and intensification, of Auckland;
- (g) the type, scale and extent of adverse effects on the identified values of the area or feature, taking into account:
 - (i) scheduled sites and places of significance and value to Mana Whenua;
 - (ii) significant public open space areas, including harbours;
 - (iii) hilltops and high points that are publicly accessible scenic lookouts;
 - (iv) high-use recreation areas;
 - (v) natural ecosystems and habitats; and
 - (vi) the extent to which the proposed infrastructure or upgrade can avoid adverse effects on the values of the area, and where these adverse effects cannot practicably be avoided, then the extent to which adverse effects on the values of the area can be appropriately remedied or mitigated.
- (h) whether adverse effects on the identified values of the area or feature must be avoided pursuant to any national policy statement, national environmental standard, or regional policy statement.

Comment

Exploratory investigation has demonstrated the creation of Joal 2 and access to building platforms in the eastern portion of the extent of place will affect previously modified, but *in situ* subsurface archaeological deposits. As this area will be raised by importing fill, it is possible these subsurface features could be retained *in situ*. The subdivision proposal avoids significant adverse effects, and where minor effects cannot be avoided, they may be further managed or mitigated.

- (7) Enable the following activities within natural heritage, natural resources, coastal environment, historic heritage, special character and Mana Whenua cultural heritage overlays:
 - (a) the use and operation of existing infrastructure; and
 - (b) the minor upgrading, maintenance and repair of existing infrastructure, while ensuring that the adverse effects on the values of the area are avoided and where those effects cannot practicably be avoided, minimise any such effects and ensure they are appropriately remedied or mitigated.

Comment

This policy relates to existing, rather than new infrastructure.

Section E38 Subdivision (Urban):

Objective E38.2 contains some additional objectives and policies that are potentially relevant to the PPC area in the future:

Objective E38.2 (7) Subdivision manages adverse effects on historic heritage or Māori cultural heritage.

Policy E38.3 (4) Require subdivision to be designed to retain, protect or enhance scheduled features including those in the Historic Heritage Overlay and Sites and Places of Significance to Mana Whenua Overlay.

Policy E38.25 Avoid reducing the width of esplanade reserve or strip, or the waiving of the requirement to provide an esplanade reserve or strip, except where any of the following apply:

(e) any scheduled historic heritage places and sites and places of significance to Mana Whenua will not be adversely affected

(26) Require esplanade reserves rather than esplanade strips unless any of the following apply:

(b) conservation and historic heritage values that are present can be adequately protected in private ownership;

Comment

The subdivision proposal provides for a 20m esplanade reserve to be subdivided along the frontage to the Mahurangi River and along the two unnamed side streams on the property where the scheduled Combes and Daldy lime works site is located. This esplanade reserve will encompass much of the physical features of the site as noted above and is therefore consistent with E38.23 (e) and E38.25 (g). Additionally, the tramway cutting will be vested in a local purpose (historic) reserve. In this manner, the key archaeological features which contribute to the historic heritage values of the place will be retained in the long-term, in single ownership, with provision for public access permanently established.

12 HERITAGE NEW ZEALAND POUHERE TAONGA ACT 2014

As set out in Section 2.2. The proposed subdivision property is associated with pre-1900 activity, therefore any proposed earthworks that might affect the Combes/Daldy Lime works site must undergo an archaeological assessment to identify any requirements under the Heritage New Zealand Pouhere Taonga Act 2014.

Any archaeological site within the proposed subdivision is protected, whether it is within the Combes/Daldy Lime works Historic Heritage Overlay or not. The HNZPTA contains a consent (authority) process and an archaeological site may not be damaged or destroyed unless an Authority to modify an archaeological site has been issued by Heritage NZ (Section 42).

It is therefore important to note that regardless of the Unitary Plan extent of place or zoning, the Combes/Daldy Lime works site or any other unrecorded archaeological site, is protected under the provisions of the HNZPTA 2014.

There is clear evidence that pre-1900 activities have occurred on the property. Exploratory investigations revealed subsurface archaeological features (the tramway) in discrete locations. Although most of the exploratory trenches demonstrated no archaeological features, and while the key identified features are avoided, there remains the possibility that subsurface features may be revealed during works. It is recommended that an archaeological authority is sought for the entire property on a precautionary basis, prior to earthworks commencing.

13 CONCLUSIONS

This report provides an assessment of effects on historic heritage for a proposed Subdivision at 34-36 Sandspit Road, Warkworth. The Subdivision seeks to protect the historic heritage values of the Combes/Daldy Lime works site through three principal methods:

1. The creation of public reserve, and through establishment of esplanade reserve, where the primary physical features associated with the Lime works site are situated, and areas of higher archaeological potential remain undisturbed by future development.
2. Through careful design of infrastructure and housing platform locations so that these occupy areas where there is low potential for archaeological remains to be present, based on recent site investigation
3. Through careful design of earthworks associated with the infrastructure and in particular the road and access network, so that the potential to retain recorded subsurface features associated with the tramway remains possible.

The potential adverse effects of the subdivision proposal on historic heritage values are assessed as low. This is because all the known features of the Category B Combes/Daldy Lime works site are substantively protected in the long term through the creation of the reserve areas, and with very minor impact to the tramline occurring in areas of previous modification.

In the unlikely event that any archaeology was uncovered outside the Historic Heritage Overlay in future development, this can also be managed through alternative mechanisms set out in the Unitary Plan, such as the earthworks assessment criteria and accidental discovery rules for archaeological sites. Furthermore, regardless of the Unitary Plan extent of place or zoning, the Combes/Daldy Lime works site or any other unrecorded archaeological site, is protected under the provisions of the HNZPTA 2014.

The proposal is consistent with the historic heritage objectives and policies of the Auckland Unitary Plan. It offers a practical option in delivering Unitary Plan development outcomes, while avoiding inappropriate development and significant adverse effects on the historic heritage values for which the Combes / Daldy Lime works site is recognised.

Further than this, the subdivision proposal additionally supports long-term protection, public access, interpretation and viewing opportunities to the Combes/Daldy lime works site through the future esplanade and reserve areas that will be established on subdivision.

The proposed public access provides considerable new opportunity for wider community access and appreciation of the lime works site, where this has not existed previously. Considered in this context, the ability to access the site, in conjunction with other lime industry in the locale, is considered a significant long-term benefit, to both the subject site and contextually related sites along the Mahurangi River.

The following recommendations are based on the most recent investigations of the Combes/Daldy Lime works site, undertaken in January 2022.

14 RECOMENDATIONS

It is recommended that, in order to further reduce or avoid potential adverse effects:

1. Archaeological monitoring is undertaken in areas of earthworks proposed with the extent of place, to record any subsurface archaeological features if any exist;
2. A Heritage Construction Management Plan is prepared to manage risk of accidental damage or other effects that may occur as a result of construction activities;
3. A Reserve Management plan is prepared to establish a schedule of maintenance for the identified archaeological features associated with the Combes / Daldy Lime works site;
4. Utilising the distinctive elements of the existing plan change area, including the Combes/Daldy Lime works site, to create a sense of place and local distinctiveness in the new development;
5. Sensitive design response to the setting of the scheduled site, for example-built form (location and building heights), architectural style and materiality (such as use of limestone or industrial materials); and,
6. Providing opportunities to link into public access and site interpretation for the Combes/Daldy Lime works site within the reserve.

Additionally, the following are considered in the final proposal or by way of resource consent conditions for Historic Heritage:

1. The following shall be undertaken by the Consent Holder or their appointed agent:
2. A Historic Heritage Construction Management Plan (BHCMP), consistent with any draft Construction Management Plan submitted with the application, shall be prepared prior to construction works commencing which details as a minimum:
 - a. Pre-start meeting requirements with contractors
 - b. the methodology for site preparation, working practices and use of machinery; and;
 - c. details methods for avoiding damage or protecting heritage fabric from damage that may potentially occur during construction (see condition 3)
 - d. if necessary, methods for monitoring potential effects from vibration on nearby heritage places in accordance with any Construction Noise and Vibration Management Plan;
 - e. protocols for on-site compliance visits and communications paths; and,
 - f. Requirements for remediation of accidental damage to historic heritage places arising from the works and any associated activities (see condition 5)
3. Protection of historic heritage fabric shall be provided for prior to construction work commencing. Built heritage features may be protected by erection of a temporary physical barrier such as Heras fencing, or through temporary fixing of construction-grade hoarding material.
4. If accidental damage or reduced condition occurs to a historic heritage place as a result of the proposed works, the Consent Holder or their appointed agent shall be responsible for undertaking remediation. Remediation will be to a standard at least equivalent to the condition prior to works commencing.

5. A historic heritage monitoring report shall be prepared to document changes or conservation works to any historic heritage places affected by the proposed works. This will be provided to Auckland Council within 12 months of completion of onsite works, for updating of the Auckland Council Cultural Heritage Inventory.

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- Simmonds, D. n.d. 'Mahurangi - Fact and Legend', in H.J. Keys (ed.), *Mahurangi River, Its Story*, n.p.
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Arts (Hons) Dissertation in Anthropology, University of Otago, New Zealand.

APPENDIX 1: SITE RECORDS

Attachment A – Rodney District Plan Operative 1993 site data

RODNEY DISTRICT PLAN		CATEGORY	PROPERTY ID	DISTRICT PLAN NO.
HERITAGE INVENTORY RECORD FORM		A		
BUILDING/SITE NAME Coombes/Daldy Kilns ADDRESS ST No. Sandspit Rd, Warkworth REGISTERED OWNER LEGAL DESCRIPTION ZONING NZHPT		LOCATION <input type="text" value="8"/>		
ARCHITECTURE STYLE MATERIALS INTEGRITY CONDITION SIGNIFICANT ELEMENTS HISTORY		DATE OF CONSTRUCTION ARCHITECT ENGINEER BUILDER		
HISTORY Located on the foreshore reserve opposite Warkworth wharf. Three lime kilns on tidal margin, base of kilns 3-4 metres above MHWS, dug into limestone and not "built". (Not photographed - too inaccessible.) See attached.				
REFERENCE SOURCES 		CURRENT USE <input type="checkbox"/> AGRICULTURAL <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> INDUSTRIAL <input type="checkbox"/> INSTITUTIONAL <input type="checkbox"/> RECREATIONAL <input type="checkbox"/> RESIDENTIAL <input checked="" type="checkbox"/> OTHER		
SIGNIFICANCE Historical: 1,2,3,4,5,6,7 Community Association: 2,3 Commemorative: Symbolic: 2 Educational: 1,2,3 Scientific:		Technological: 1 Architectural: 1 Context: 1,2,3,5,6 Rarity: 1 Integrity: 1,2,3		
		THEMES IN HISTORY Lime industry		

Inventory record form prepared by Dinah Holman

January 1999



Attachment B – Auckland Council District Plan: Operative Rodney Section 2011



Zones/Policy Areas

- General Rural
- Landscape Protection Rural
- Dune Lakes
- Countryside Living Rural
- Countryside Living Town
- East Coast Rural
- Residential H (High Intensity)
- Residential M (Medium Intensity)
- Residential M (Township Policy Area)
- Residential EP (Eastern Peninsula)
- Residential PL (Physical Limitations)
- Residential L (Low Intensity)
- Residential LP (Landscape Protection)
- Retail Service
- Mixed Business
- Industrial
- Open Space 1
- Open Space 2
- Open Space 3
- Open Space 4
- Open Space 5
- Special Zones (3)
- Future Urban
- Islands General
- Inland Water (General)
- Inland Water (Protection)

Notations

- Designation (see Appendix 15A)
- Scheduled or Restricted Activity (see Rules 14.8.2 and 14.8.3)
- Protected Item (see Appendix 17A-17D, 18A to Rules)
- Future Esplanade Reserve or Strip (see Appendix 23A to Rules)
- Indicative Roads and Accessways (see Rules 16.11 and 23.8.13)
- Indicative Reserves (see Rules 16.11 and 23.8.13)
- Road to be Widened or Stopped (see plans at back of Maps)
- Boundary between Special Zones
- Boundary of Wharf/Mooring Area
- Airfield Height Boundary (see Appendix 1 to Maps)
- Structure Plan Areas (see Appendix 6 to Maps)
- HP Gas Pipelines (see note in front of Maps)
- HV Transmission Lines (see Rule 23.8.17 and note in front of Maps)

Contact Council Regarding Known Land Hazards

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Auckland Council District Plan (Rodney Section) 2011

14	14	14
53	54	14
55	56	57

MAP 54
Scale 1 : 6 000

App 17 B Historic Structures, Sites and Fixed Objects Listed for Protection

No	Map No	Item	Location (Heritage Study Area Folder)	Legal Description	Reasons for Including Item in List	Area within Site of Item where Proposed Structures and Additions to Structures Require Resource Consent
H 185	54 (19)	Coombes/Daldy Lime Kilns (2)	Adj 34 and 36 Sandspit Road, Warkworth	Pt Lot 51 DP 703 [Amendment 135]	h 1,2,3,4,5,6,7 ca 2,3 e 1,2,3 t 1 s 2 a 1 c 1,2,3,5,6 r 1 i 1,2,3	All land within 10m of the protected item.

Attachment C – PAUP rollover data

IMPORTANT: PLEASE WRITE CLEARLY AND LEGIBLY

Site Visit Checklist – Project UID 00569			
District Plan ID:	H185	Item Name:	Coombes/Daldy Lime Kilns (2)
Address:		Adj 34 and 36 Sandspit Road, Warkworth	
Date of Site Visit:	31/1/12	Undertaken by:	Joe Jeffries / Harry Haykin
1.	Does the item still appear to exist?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
2.	Does the address of the item 'on the ground' match the address/location information on the schedule?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
2.a If 'No' above, enter the details of the location of the item using one or more of the details below:			
Street No:	<input type="text"/>	Street Name:	<input type="text"/>
Suburb:	<input type="text"/>		
Description:	<input type="text"/>		
3.	Photograph of item taken in accordance with the photographic guide.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
3a.	If 'No' to 3 above, explain why:		
	<input type="text" value="Could not photograph from public area"/>		
3b.	Insert photograph references: <input type="text"/>		
4.	Level of access obtained:	<input checked="" type="checkbox"/> From street	<input type="checkbox"/> Within site
5.	Item identified on GIS Extract clearly and legibly	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Notes/Comments:			
<input type="text" value="No photo taken but spoke with property owner who confirmed item still exists."/>			



<p><small>The location of buildings and other information shown is independent of the information shown on this plan. The Auckland Council Land Parcel Boundary Information System (LPI) is the authoritative source of information for the Council's land parcels. The Council is not liable for any errors or omissions about the information provided on this map or for any errors or omissions about the information provided on any other map.</small></p>	<p>Protected Buildings, Objects or Structures Item: Coombes/Daldy Lime Kilns (2) Project_UID: 589 District Plan Reference: H185 Found in Grid Sheet: 14a</p>	<p>1 cm = 13 meters</p>	 <p>Auckland Council <small>Te Kaitiaki Take Kōwhiri</small></p>
<p>Date: November 2011 RODNEY</p>			

Location for Historic Heritage Place (red dot) apparently taken from Rodney planning Map 54

Attachment D: Warkworth Structure Plan Historic Heritage Topic Report

	Place name/description Site of Combes, Daldy & Co lime works (c1862-1870s). Lime kilns (3), landing, path, terraces, tramway route, quarry
	Address 36 Sandspit Road, PT LOT 51 DP 703.
	NZTM reference NZTM → Easting: 1749157 Northing: 5970812
	CH/INZAA no. 1013/R09_2240. AUP historic heritage schedule ID 00569
Notes These lime works were located above the north bank of the Mahurangi River opposite the town centre, between the second and third streams that join the river on that side just below the Puhinui falls. They are thought to have been the second operated by John Southgate in partnership with the firm of Combes and Daldy, after the first operation proved unsuccessful. The property (Lot 48, comprising 162 acres) on which the works were situated was owned in 1864 by Combes and Southgate, and in 1888 by Wilsons Cement Company (DP703). The works included a limestone quarry linked by a tramway to the kilns, associated buildings, terraces, formed path and a foreshore landing. Location of works shown on SO1150B (1864). Currently in grassland and scrub.	





Warkworth Structure Plan 27/05/2019. This shows "Protection areas (not for development)" in light green, with the subject site arrowed. Protection areas can include historic heritage, but also other values such as landscape, so it is not clear in this plan what the light green areas relate to in terms of the values/ extent of place.

Attachment E: Plan Change 27 Information and Extent of Place Map

Local Board Area:	Rodney
ID:	00569
Place name and/or description	Combes/Daldy lime works site R09_2240
Subject property:	36 Sandspit Road, Warkworth
Legal Description:	Pt Lot 51 DP 703; CMA
Proposed changes:	<i>Add extent of place as shown in blue cross-hatching Delete purple dot</i>

Proposed extent of place:



00569	<u>Combes/Daldy Lime Kiln works site R09_2240</u>	<u>36 Sandspit Road, Warkworth</u>	<u>Pt Lot 51 DP 703; CMA</u>	B	<u>Entire extent of place except quarry pit</u>	A,B,D,E,F,H	<u>To-be-defined# Refer to planning maps</u>	Yes	
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Attachment F: Auckland Council CHI Record 1013

CHI Places Number	1013	NZAA Site Number	R09_2240
NZMS 260 map number	R09	Date of visit	1993
NZMS 260 map name	Auckland	Type of site or area	Limeworks Site
NZMS 260 map edition	Edition 1 1981	Name	Combes and Daldy lime works Joseph Ragg's lime works Palmers lime works Southgate's Limeworks
Grid references Easting:	2659899	Northing	6532532
1. Aids to relocation of site (attach a sketch map):			
36 Sandspit Road, Warkworth. Pt Lot 51 DP 703.			
2. State of site and possible future damage:			
In good condition.			
3. Description of site (supply full details, history, local environment, references, sketches, etc. If extra sheets are attached include a summary here)			
Location given by Johnson 1994: Opposite Warkworth town on banks of Mahurangi River. Three lime kilns on tidal margin. The kilns are dug into the limestone and not "built". There is some related historic debris in the tidal zone. Base of kilns are 3-4m from MHWS.			
Additional Notes:			
Additional information provided by Dinah Holman (Jan 1999): Located on the foreshore reserve opposite Warkworth wharf. (not photographed - too inaccessible). See attachment. Additional information by Robert Brassey (04/05/2018) : This lime works was located above the north bank of the Mahurangi River opposite the town centre, between the second and third streams that join the river on that side just below the Puhinui Falls. These works are thought to have been the second operated by John Southgate in partnership with the firm of Combes and Daldy, after the first operation proved unsuccessful. The property (Section 48, comprising 162 acres) on which the works were situated was owned in 1864 by Combes and Southgate, and in 1888 by Wilsons Cement Company (DP703). Key (1953: 43) states that the works were built in 1859 to produce agricultural lime, and that shell was brought up river and used with limestone in the manufacturing process. However it is clear that they did also produce lime for construction purposes (Locker 2001:279), at least in later years. This date for the commencement of the operation may be too early. A somewhat ambiguous 1862 article appears to suggest that it may have been May 1862. The works were subsequently operated by Southgate and Henry Palmer, and were sometimes referred to as 'Palmers'. The Palmer family owned the adjacent property further up the Mahurangi River, and Henry Palmer built and operated the flour mill on the south bank of the Mahurangi. Another name for the works was Joseph Ragg's lime works (see Locker 2001:279). It is conceivable that the Combes and Daldy works were the second to be built on the site, and that there was an earlier works operated by or for J.A. Brown or Joseph Ragg. Two early plans dated 1864 show two kilns and two other buildings/structures. It appears that the quarry was ca 100m upslope from the kilns and linked by a tramway to the kilns, and there was a storage shed located close to the river (see Locker 2001:279). The works were still in operation in 1876, when Southgate opened a new works on the opposite side of the river near the end of Southgate Road (Locker 2001:279). Source: Historic Heritage Topic Report. Warkworth Structure Plan. 2018 (from CHI Bibliography 13548). Update NZTM coordinates from E1749125 N5970859, to E1749157 N5970811. CHI places record 633 is a duplicate of this record.			

4. Owner	RDC	Tenant/Manager	
Owner Address		Tenant/Manager Address	
5. Nature of information (heresay, brief or extended visit, etc.)	visit		
Aerial photographs (reference numbers, and clarity of site)			
Photographs (reference numbers, and where they are held)			
6. Reported by	Leigh Johnson Dinah Holman Robert Brassey	Date recorded	11/04/1994 00/01/1999 04/05/2018
Filekeeper		Date (NZAA SRF Entry Date)	
Address			
7. Keywords	ACZ COMBES DALDY KILNS HENRY PALMER HISTORIC INDUSTRIAL JOHN SOUTHGATE JOSEPH RAGG KILN KILNS LBD LIME Plan Change 27 Proposed Auckland Unitary Plan RODNEY DISTRICT HERITAGE STUDY UP Category B UPID00569		
8. New Zealand Register of Archaeological Sites (for office use)			
NZHPT Site Field Code			
Latitude S		Latitude E	
	Type of site		Present condition and future danger of destruction
	Local environment today		Security Code
	Land classification		Local body
ACC Heritage Number			

SITE RECORD HISTORY	NZAA SITE NUMBER: R09/2240
<p>Site description</p> <p>Updated 24/05/2018 (Field visit), submitted by robertbrassey , visited 15/02/2018 by Brassey, Robert Grid reference (E1749157 / N5970811)</p> <p>These works are thought to have been the second operated by John Southgate in partnership with the firm of Combes and Daldy, after the first operation proved unsuccessful. The property (Section 48, comprising 162 acres) on which the works were situated was owned in 1864 by Combes and Southgate, and in 1888 by Wilsons Cement Company (DP703). Key (1953: 43) states that the works were built in 1859 to produce agricultural lime, and that shell was brought up river and used with limestone in the manufacturing process. However it is clear that they did also produce lime for construction purposes (Locker 2001:279), at least in later years. This date for the commencement of the operation may be too early. A somewhat ambiguous 1862 article (Fig.18) appears to suggest that it may have been May 1862. The works were subsequently operated by Southgate and Henry Palmer, and were sometimes referred to as 'Palmer's'. The Palmer family owned the adjacent property further up the Mahurangi River, and Henry Palmer built and operated the flour mill on the south bank of the Mahurangi. Another name for the works was Joseph Ragg's lime works (see Locker 2001:279). It is conceivable that the Combes and Daldy works were the second to be built on the site, and that there was an earlier works operated by or for J.A. Brown or Joseph Ragg. Two early plans dated 1864 show two kilns and two other buildings/structures. It appears that the quarry was ca 100m upslope from the kilns and linked by a tramway to the kilns, and there was a storage shed located close to the river (see Locker 2001:279). The works were still in operation in 1876, when Southgate opened a new works on the opposite side of the river near the end of Southgate Road (Locker 2001:279).</p> <p>The works were sometimes known as Palmer's or Joseph Ragg's lime works. Source: Historic Heritage Topic Report. Warkworth Structure Plan. Auckland Council</p> <p>Condition of the site</p> <p>Updated 24/05/2018 (Field visit), submitted by robertbrassey , visited 15/02/2018 by Brassey, Robert</p> <p>Property is currently large lot residential & site is in mown grass with some trees. Not accessed but kilns appear to be visible as crop marks on modern aerial photos</p> <p>Statement of condition</p> <p>Updated: 27/08/2018, Visited: 15/02/2018 - Below surface - Surface evidence has been obliterated, however, there is likely to be subsurface material present. Note that this is different from a destroyed site.</p> <p>Current land use:</p> <p>Updated: 27/08/2018, Visited: 15/02/2018 - Rural residential</p> <p>Threats:</p> <p>Updated: 27/08/2018, Visited: 15/02/2018 - Subdivision, Residential activities, Tree planting (other than forestry), Property development</p>	

Attachment H – CHI Site Summary Updated September 2021

UPID 00569	Coombes/Daldy Lime Kilns	36 Sandspit Road, Warkworth
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Auckland Council (2018). Warkworth Structure Plan – Historic Heritage Topic Report. Auckland Council, p. 38

a) Historical	Considerable
b) Social	Considerable
c) Mana Whenua	N/A
d) Knowledge	Considerable
e) Technology	Considerable
f) Physical attributes	Considerable
g) Aesthetic	N/A
h) Context	Considerable

**The attributes for this table are to be sourced from the AUP schedule 14.1 and supplemented by rollover evaluations of the place in the property file. This is not intended as an evaluation of the place against the criteria.*

HISTORICAL SUMMARY

Warkworth

The Mahurangi River was a 'sheltered haven' for Māori, with abundant seafood, forest food and a good climate for crops, especially fern root.¹ The name Mahurangi appears to have

¹ R.H. Locker. (2001). *Jade River: a history of the Mahurangi*. Warkworth: Friends of Mahurangi, p. 21

come from a sea stack which was also the pā of Kahikitearoa, a Te Kawerau chief.² At the time of the arrival of the first Europeans in the early 19th century, the Mahurangi district was occupied by the sub-tribal groups Ngāti Rongo, Ngāti Kā and Ngāti Raupo. They were often referred to generally as Te Kawerau and were also related to Ngāti Whātua.³ Te Kawerau a Maki are tangata whenua for the area.⁴

Mahurangi Purchase 1841

In 1841, land was purchased from the Hauraki iwi who controlled the area at the time.⁵ The Mahurangi Purchase was for 100 000 acres (40 468 ha) and was in two blocks – the Mahurangi and the Omaha. The land was purchased for £200 and the following: 400 blankets, 100 gowns, two horses, six casks of flour, 200 pairs of trousers, 30 coats, two cows, two bags of rice, 60 camlet coats, 100 caps, four casks of tobacco and one bag of sugar.⁶

However, the legality of the sale was questioned, and another payment was made to Ngāti Rongo.⁷ Once this was resolved, Charles Heaphy completed surveying the area (in 1853) and land sales began.⁸ In the meantime, squatters had moved into the remote bush areas and others had been granted licenses to cut timber and firewood or to quarry or burn lime. One of these timber licenses was made to John Anderson Brown, who established a water-powered sawmill on the river.⁹ Brown purchased land on 15 November 1853. It's likely he paid 10 shillings an acre, which was the going rate.¹⁰

Establishment of Warkworth by John Anderson Brown

Newcastle-born James Anderson Brown (1801-1867) came to New Zealand after unsuccessfully trying his luck in Australia. He bought several town sections in Auckland in the 1840 land sales, setting up as a storekeeper. When this too failed, he decided to take advantage of Auckland's thirst for timber and sought good felling opportunities in the Mahurangi. He established a water-powered mill on the Mahurangi River with equipment he probably sourced from Australia. His brother William Forster Brown joined him in 1841.¹¹ Sawmilling appears to have begun about 1844, and by 1845, around 35 men and women were living at Brown's Mill.¹²

In 1853, he purchased 153 acres (Lot 67) between the Mahurangi River and the proposed government road for £68 17 shillings. He bought another adjacent 81 acres (lot 50) in his daughter Amelia's name for £36 9 shillings. Amelia purchased the land from him the day

² Locker, p. 6

³ Auckland Council (2018). Warkworth Structure Plan – Historic Heritage Topic Report. Auckland Council, p. 9

⁴ Locker, p. 25

⁵ Auckland Council, p. 9

⁶ Locker, p. 64

⁷ Auckland Council, p. 9

⁸ Locker, p. 65

⁹ Locker, p. 66

¹⁰ Locker, p. 68

¹¹ Locker, pp. 72, 3

¹² Locker, pp. 72-3

before her marriage in 1855.¹³ He purchased two further lots in the area in 1854 and 1856.¹⁴ In 1854 he announced the sale of Warkworth town lots.¹⁵ The lots did not sell out, so in 1864 he had an auction, managed by Samuel Cochrane. The quarter acre sections were sold for £6-£15 each, with land put aside for a village green, Anglican church, and public hall.¹⁶ Brown remained a presence in the town until his death in 1867 – he was at times postmaster (from 1859); Deputy Registrar of Marriages (1861), coroner (1861), constable and chair of the Mahurangi Highway Board (1863).¹⁷

Brown built a flour mill in 1855 to process both imported and locally grown wheat. It continued to be used until 1869 and it was then used to grind lime for cement manufacture.¹⁸

More recently

As well as logging, orchards, farming, milling and ship building, Warkworth was once the centre of Portland cement production in New Zealand. The area had good quantities of lime, which was used to produce Portland cement, mortar, and plaster. Wilson's Cement Company was established by 1885 and remained in Warkworth until 1928/9.¹⁹ The key industries today are grape growing, horticulture, recreation and tourism, and oyster farming.²⁰

36 Sandspit Road

The first Pākehā owner of the land that would become 36 Sandspit Road was Frederick Ring. He received a Crown Grant on 26 April 1854. Ring retained the land until 1884 when it was transferred to the Warkworth Cement Company Limited (who also purchased several other large lots). In 1889, Thomas Melville (one of the directors of the Warkworth Cement Company Limited) was the named owner of the site, which at that time covered 182 acres of land. He retained it until 1902, when it was transferred to Isabella Wilson. Wilson leased various parts of the property until part was sold in 1904 (one part to Thomas Williams) and the rest to John Wilson and Co Ltd in 1908. The title records numerous leases and subleases from 1900 to 1914. The land remained in the hands of Wilson family members and Wilson's Portland Cement Company (through several name changes) until 1929, when this section was sold to the Rodney Co-operative Dairy Company (they purchased several lots during the 1920s). It was then sold to James Macfarlane in 1929 and then to Edward Vipond in 1938. By this time, the larger site had been subdivided and the site of interest was about seven acres. It remained in the Vipond family until 1996; for most of that time (1952-1996), Donald Nelson Vipond was the owner. It passed to his beneficiaries after his death,

¹³ Christine McClean (2017). *John Anderson Brown: founder of Warkworth, New Zealand*. Warkworth: Warkworth Museum Archives, p. 13

¹⁴ McClean, p. 13

¹⁵ Locker, p. 75

¹⁶ Sir George Grey Special Collections, Auckland Libraries, NZ Map 4498-26; McClean, p. 19

¹⁷ Locker, p. 75; McClean, p. 18

¹⁸ Bree Wooller (2018) *The historical archaeology of coastal trade on the Mahurangi River*. A dissertation in partial fulfillment of the requirements of a Bachelor of Arts (Hons) in Anthropology. University of Otago, p. 21

¹⁹ Margaret McClure, 'Auckland places - Warkworth', Te Ara - the Encyclopedia of New Zealand, <http://www.TeAra.govt.nz/en/auckland-places/page-1> (accessed 17 September 2018); Auckland Council, p. 12; IPENZ. Mahurangi Cement Works (Ruins) Retrieved from <http://www.ipenz.org.nz/heritage/itemdetail.cfm?itemid=88> 17 September 2018

²⁰ McClean, p. 3

who sold it to Nevada Holdings in 1997. It was purchased again in 2005 and remains with these owners in 2021.²¹

Mahurangi lime

Mahurangi's geology includes sedimentary sandstones and mudstones as well as 'patches of chalky white limestone which are part of the Northland Allochthon....The limestone deposits occur to the north of Warkworth as well as along the upper reaches of the Mahurangi river on both the northern and southern bank'.²² This was quickly picked up by local entrepreneurs and the lime was used to improve clay soils around Auckland for agriculture. Initially, natural lime would have been cut and shipped elsewhere for processing, but eventually mills were established in the area to process the raw material. Lime was also used in mortar, plaster, and cement, which were in high demand in the growing Auckland region.²³

Bree Wooller describes the process for burning lime in her 2018 dissertation:

Quarried stone was loaded into the top of a vertical kiln along with fuel. Initially, wood was used, but in later stages of production coke or coal was shipped in to fuel the kilns (Locker 2001: 276). An air vent at the bottom of the kiln would produce a draft that allowed the lime to burn for several days. The burnt lime was then unloaded (Locker 2001: 276). Burnt lime in this form is known as roche lime or quicklime. This product is then reacted with water to form hydrated lime; this process is called slaking.²⁴

Southgate's limeworks for Combes and Daldy – the scheduled place

Southgate's second works were located across the river from Warkworth town (see below for details of other limeworks in the area). This is the scheduled place. The Warkworth Structure Plan – Historic Heritage Topic Report states that the scheduled site 'potentially contains the oldest surviving evidence of lime burning in the district'.²⁵ Southgate operated this works with Combes and Daldy and later Henry Palmer. The starting date for this operation is around 1859 or 1862, depending on the source. The kilns are marked on several maps dating from 1864, when John Anderson Brown (founder of Warkworth) attempted to sell more of his village allotments. The kilns ceased production by 1880, but an exact date is not known.²⁶

This site was known by a variety of names – Combes, Daldy and Co's Limeworks, Palmer's lime works, and sometimes Joseph Ragg's lime works. While some sources have suggested that Ragg ran an earlier operation on the same site, he did not arrive in New Zealand until 1864 and Mahurangi until about 1880, so this seems unlikely.²⁷ Another suggestion is that

²¹ Certificates of title NA35C/479, NA1029/196, NA1029/197, NA492/233, NA177/76, NA154/243, NA96/189, NA55/55, NA37/295.

²² Wooller, pp. 16-17

²³ Wooller, pp. 43-4

²⁴ Wooller, pp. 43-4

²⁵ Auckland Council, p. 4

²⁶ Wooller, p. 48; Keys, p. 11; Auckland Libraries Heritage Collections 7-C521

²⁷ Wooller, p. 48; Bernadette Siebert (2021) Elizabeth Ragg. Retrieved from <https://nzhistory.govt.nz/suffragist/elizabeth-ragg> 23 June 2021

Joseph Ragg's lime works were leased from Henry Palmer and the lime worked (burned) by Southgate and Palmer.²⁸

A newspaper article from 1862 describes the Combes and Daldy lime burning enterprise. It notes that they had recently begun burning lime and were expecting to produce 800-900 bushels at a time. The kiln was connected to the quarry by a tramway measuring 20 rods (100 metres). The lime was intended to be used as both cement and as fertiliser. The cutter *Frances* (named for Daldy's wife and likely skippered by her brother, Henry Pulham) transported the lime to Auckland.²⁹

Combes and Daldy were active in the Mahurangi from 1850. By 1864, Combes and Daldy owned 1220 acres of land in the Mahurangi area. They had timber camps throughout the area and employed numerous sawyers and woodcutters.³⁰ An advertisement from September 1850 shows that they were selling lime by this date.³¹ An entry in Combes' and Daldy's father-in-law William Pulham's diary notes that they were cutting lime 'at the head of the River' by 1855. Pulham also notes that his son Henry was skippering a boat carrying lime for Combes and Daldy.³²

It appears that Combes and Daldy leased the land from owner Frederick Ring and then employed Southgate, who had experience in lime burning, to process the lime.

Known kilns and lime processing works in Warkworth

The history of lime burning and production in Warkworth is complex, with many individuals involved in multiple businesses. Below is an outline of known kilns and lime processing works in Warkworth.

John Sullivan

John Sullivan was probably the first lime trader in the area: he applied for a licence to quarry limestone on 3 December 1849 and renewed his licence on 28 November 1850. On 23 December 1851, he applied for a licence to burn lime. On 30 March 1850, Sullivan complained about John Anderson Brown entering the business, as he had expected a year to work the deposits himself before anyone else could compete against him. In the end Sullivan was granted a six-month monopoly and Brown received his quarrying (and burning) licence in September 1850. A map accompanying John Anderson Brown's application of 1850 shows Sullivan's hut and quarry just below the Wilson's Cement Works (UPID 00576), where William Southgate built his first hotel in 1848. There is no evidence that Sullivan built kilns – he likely shipped the raw material – but he did have permission to burn lime.³³ Combes and Daldy owned the land that Sullivan's works occupied and 'Daldy's wharf' is marked on an 1855 survey plan by Charles Heaphy.³⁴

²⁸ Locker, p. 279

²⁹ Mahurangi limestone (1862, May 22) Daily Southern Cross. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/DSC18620522.2.8> 1 September 2021; Locker, p. 274

³⁰ Locker, pp. 66, 274

³¹ Advertisements (1850, November 19) Daily Southern Cross. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/DSC18501119.2.2.1> 17 June 2021

³² Locker, p. 274

³³ Locker, p. 276; Wooller, pp. 44-5

³⁴ Wooller, p. 45; Archives NZ ACGO 8333 IA1 100 18512573; SO 1150-E

John Anderson Brown

John Anderson Brown was also involved in the lime industry, quarrying between 1850 and 1852. His site was likely on the Warkworth town side of the river. Brown may also have been burning lime, as Sullivan complained that Brown had built a kiln, and Brown's request on 14 March 1850 was to both quarry and burn lime. Brown's correspondence from March 1850 describes the site as being about a quarter of a mile from Sullivan's lime works. He was using Crown Land, which he hoped to later purchase, for this lime works. Brown received his quarrying licence in September 1850.³⁵

Southgate's first operation

John Southgate managed three different lime works from the 1850s to 1890s. The date of the first is not confirmed but is likely to be about 1853 (some accounts put it as early as 1850).³⁶ John Southgate first produced lime on the same site where Wilson's cement would later be. He did not have a grinding machine and was not able to produce lime fine enough to be successful.³⁷

Southgate's third operation

Southgate's third limeworks were located near Southgate Road. Keys states that the limeworks were established in 1863, and Locker states that Southgate's lime was used for the 'Queen Street sewer' but does not give a date.³⁸ Dave Pearson Architects states that Southgate began burning lime at this site in 1873.³⁹ This site had three kilns, a wharf, and associated buildings. It could produce 300 bushels of lime per week in 1876. Southgate's lime is advertised throughout the 1880s. The site probably shut down in the 1890s, but the exact timing is not known. The site was purchased by Wilson's Cement Works in 1900. The kilns were destroyed in 1946, when the Rodney Lime Company established a new quarry to extract lime for fertiliser.⁴⁰

It is thought that this is the works shown in William Eastwood's painting, dated 20 January 1873 (see below).⁴¹

Shell lime

An 1853 plan shows a shell lime burning kiln on land owned by Combes and Daldy.⁴² There was another shell lime burning site on Bradley Point (CHI 1016).⁴³ Shells were used to increase the lime content at poorer sites.

³⁵ Wooller, p. 47; Archives NZ ACGO 8333 IA1 100 18512573

³⁶ Wooller, p. 46

³⁷ Locker, pp. 278-9

³⁸ Keys, p. 13; Locker, pp. 278, 280

³⁹ Dave Pearson Architects Ltd (2004). The Warkworth Tavern, Queen Street, Warkworth: A heritage assessment, p. 7

⁴⁰ Wooller, pp. 52-3; Locker, p. 280

⁴¹ Auckland Libraries Heritage Collections AWNS-19040428-1-3

⁴² Wooller, p. 47

⁴³ Wooller, p. 48

Landowner: Frederick Ring

It appears that Combes and Daldy leased the land from Frederick Ring (c1824-1887), who received a Crown Grant in 1854 and retained the land until 1884. Ring was one of three brothers, the sons of an imperial soldier who settled in Tasmania. The family was originally from Guemsey. Between 1846 and 1849, Fredrick and his brother Charles arrived in New Zealand with two shiploads of cattle, which they then sold. They followed the gold rush to California in 1849 and returned to Auckland in 1851. They then headed to the Coromandel to start a sawmilling business. Inspired by their time in California, they decided to prospect for gold in the Coromandel. At the time, the government was offering a reward for the first discovery of gold in the Coromandel: Charles and Frederick registered the first gold discovery at Driving Creek in October 1852. They also found gold at Cabbage Bay and Te Aroha. Charles seems to be the better known of the brothers and Rings Roads in Coromandel is named after him. He (and Frederick) is credited with the first European discovery of gold in New Zealand. The New Zealand Wars interrupted their plans for several years and Frederick was a lieutenant in the Volunteer Cavalry Corps from 1863. They resumed goldmining in 1865. Frederick was the manager of the Carpenters' Gold Mining Company in 1868. He married Elizabeth Lamont Kirkwood (1839-1919) in 1864 and they had five children. He returned to Auckland in 1869 and 'employed himself in mining and other speculations'.⁴⁹ It seems that leasing his land to Combes and Daldy for lime burning was one of those speculations. Ring owned other land in the Mahurangi (neighbouring allotment 47, allotment 53, north of the Mahurangi River, and allotment 101).⁵⁰

*People associated with lime burning and lime works in Warkworth**John Southgate*

John Southgate (1819-1894) was a publican and managed three different lime burning businesses in Warkworth. He was the proprietor of what is now known as the Warkworth Establishment Hotel (UPID 00557). Southgate and his family arrived in Warkworth in 1848. By the early 1850s, he had established himself manufacturing and selling lime on the site later occupied by Wilson's Cement Works. He sold this land in around 1859 and leased

⁴⁹ Thames Coromandel District Council (no date) Coromandel Heritage Area, pp. 3, 9; Obituary (1887, February 25) *New Zealand Herald*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/NZH18870225.2.64.5> 31 August 2021; Volunteer Cavalry Corps (1863, July 20) *Daily Southern Cross*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/DSC18630720.2.12> 31 August 2021; Advertisements (1868, August 15) *New Zealand Herald*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/NZH18680815.2.2.2> 31 August 2021; Mr Charles Ring (1902) *Cyclopedia of New Zealand* [Auckland Provincial District]. Retrieved from <http://nzetc.victoria.ac.nz/tm/scholarly/tei-Cyc02Cycl-t1-body1-d1-d61-d45.html> 31 August 2021; Carl Walrond, 'Gold and gold mining - As good as gold', *Te Ara - the Encyclopedia of New Zealand*, <http://www.TeAra.govt.nz/en/gold-and-gold-mining/page-1> (accessed 31 August 2021); MARRIAGE record for: FREDERICK RING and ELIZABETH LAMONT KIRKWOOD, Registration Number 1864/4047; BIRTH record for: WILLIAM JOSEPH RING, Registration Number 1878/6607; BIRTH record for: FLORENCE RING, Registration Number 1874/448; BIRTH record for: FREDERICK CHARLES RING, Registration Number 1869/12120; BIRTH record for: ELIZABETH CAMPBELL RING, Registration Number 1867/12228; BIRTH record for: MARGARET LARMONT RING, Registration Number 1870/13725; Elizabeth Lamont (Kirkwood) Ring (2021) Wikitree. Retrieved from <https://www.wikitree.com/wiki/Kirkwood-1485> 2 September 2021

⁵⁰ Auckland Council, pp. 15, 72

another site and continued with lime manufacturing.⁵¹ In 1873, he shifted to yet another site and continued burning lime further down the Mahurangi River.⁵²

At the same time, he established the first tavern in Warkworth, which was on the right bank of the Mahurangi River. He sold this land to Wilson in 1863 or 1864 and then established what is now the Warkworth Hotel (though it was known at the time as Southgate's Inn).⁵³ There are licencing notices for Southgate's Inn and John Southgate from 1863, 1864 and 1874.⁵⁴ He owned the Inn between 1864 and 1875. Southgate planted the Norfolk Island Pine tree (ID 2356) which still stands outside the hotel.⁵⁵ The hotel has also been known as the Mahurangi, the Warkworth, the Establishment and the Hotel.⁵⁶

Combes and Daldy (business)

Walter Combes and William Crush Daldy were business partners and brothers-in-law. They both married daughters of William Pulham and Frances nee Burrow: Daldy married Frances and Combes her sister Eleanor. William Pulham was a captain for the East India Company who settled in Auckland in 1846, eventually moving to the Mahurangi after his sons and sons-in-law purchased land there in 1851. His son Henry, also a sea captain, became a significant figure in Warkworth.⁵⁷

Combes managed the business in central Auckland, while Daldy worked on timber and shipping interests outside of the city (see more below). From 1847, Combes and Daldy traded timber, gum and firewood and established their shipping company in 1849. They also became underwriters for coastal vessels and in 1859, established the New Zealand Fire and Marine 1859 Insurance Company.⁵⁸ They had a business relationship with Captain Ranulph Dacre, who had been cutting timber as spars for ships in the Mahurangi since 1832. Dacre

⁵¹ Dave Pearson Architects, p. 7

⁵² Dave Pearson Architects, p. 7; Obituary (1894, May 16) *New Zealand Herald*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/NZH18940516.2.11> 4 June 2021

⁵³ Dave Pearson Architects, p. 7

⁵⁴ Licensing meeting. (1863, September 2). *New Zealander* <https://paperspast.natlib.govt.nz/newspapers/NZ18630902.2.18>; Licensing notice. (1874, March 19). *Daily Southern Cross* <https://paperspast.natlib.govt.nz/newspapers/DSC18740319.2.26.4>; Licensing day. (1864, April 23). *New Zealander* <https://paperspast.natlib.govt.nz/newspapers/NZ18640423.2.15>

⁵⁵ Dave Pearson Architects, pp. 7, 14

⁵⁶ Dave Pearson Architects Ltd, p. 13

⁵⁷ Auckland Council, p 19; Pae Korokī (9th Mar 2021). Diaries of Eleanor Sarah Combes. In Website Pae Korokī. Retrieved 1st Sep 2021 11:38, from <https://paekoroki.tauranga.govt.nz/nodes/view/39560>; Judy Waters (undated) Settlement's father. Retrieved from <https://www.localmatters.co.nz/blogs/1081-opinion-history-warkworth-district-museum-settlements-father.html> 23 June 2021

⁵⁸ DALDY, William Crush', from An Encyclopaedia of New Zealand, edited by A. H. McLintock, originally published in 1966. Te Ara - the Encyclopedia of New Zealand URL: <http://www.TeAra.govt.nz/en/1966/daldy-william-crush> (accessed 17 Jun 2021); Captain WC Daldy (1881, July 2) *New Zealand Herald*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/NZH18810702.2.49> 17 June 2021; Captain William Crush Daldy (1902) Cyclopedia of New Zealand (Auckland Province). Retrieved from <http://nzetc.victoria.ac.nz/tm/scholarly/tei-Cyc02Cycl-t1-body1-d1-d10-d11.html> 17 June 2021; Lesley N Dugdale (1993) *Captain William Crush Daldy, 1816-1903*. Waikanae: The Heritage Press, pp. 189-217

was still active in 1840 and Combes and Daldy are described as his 'later associates'. The earliest references to their partnership in newspapers is from 1851.⁵⁹

Combes and Daldy had timber interests in Mahurangi. By 1864, they owned 1220 acres of land in the district. They had firewood cutting licences in 1848, but the location is not known. In 1850, they were shipping timber from Mahurangi to Auckland but it's not clear whether they were felling the timber or just transporting from another mill. They applied for timber cutting licences in Mahurangi and Waiwera in 1851 and reapplied in 1852. They also pit sawed timber and cut piles, some of which were used in the Queen Street Wharf.⁶⁰

William Crush Daldy

William Crush Daldy (1816-1903) was born in Rainham, Essex and went to sea at age 16, serving onboard his father's ship (his father was a coal merchant), and later travelling the world in his own ship, *Shamrock*. In the mid-to-late 1830s he sailed on Captain William Pulham's ship *Union* from London to Trieste as second mate. He soon became a captain for Pulham and sailed with him and two of his daughters (including Daldy's future wife Frances) to Tasmania in 1839. Pulham and his family purchased a farm there and Daldy and Frances were married in April 1841. Shortly afterwards the couple set out for New Zealand, arriving in Auckland on 1 July 1841. Daldy traded between Auckland and Sydney for three years and was captain for Brown and Campbell's vessel *Bolina* in 1844, when it took manganese ore from Auckland to the United Kingdom. In 1847, Daldy purchased 300 acres at Hellyers Creek (Beach Haven) and established a timber mill there, which closed in 1849. Frances and their daughter accompanied him there and they added to an existing cottage to create a home they called the Retreat. During this time, Daldy was called to assess the condition of a ship stranded in the Kaipara and soon became a marine surveyor. Meanwhile, the Pulhams left Tasmania and settled in Auckland, eventually settling in Warkworth.⁶¹

Daldy was the member for the City of Auckland in the House of Representatives from 1855-1860; he was also a member of the Auckland Provincial Council in 1857 and again from 1861 to 1864. He was an agent for the Provincial Government in England, helping promote immigration to New Zealand.⁶² He was a captain of the Auckland Naval Volunteers during the Waikato Wars, serving in Drury and Thames.⁶³ He was actively involved in Auckland life – he was a Justice of the Peace, founder member of the Auckland Chamber of Commerce, a trustee of the Auckland Savings Bank, and briefly a member of Auckland City Council. He was captain of Auckland's volunteer fire brigade and the first director of the Auckland Harbour Board, holding the post from 1871 to 1877.⁶⁴ He was also involved in the Freedom

⁵⁹ H. Mabbett (1977) *The Rock and the Sky*. Auckland: Wilson and Horton, p. 14; Frank Rogers. 'Dacre, Ranulph', *Dictionary of New Zealand Biography*, first published in 1990. Te Ara - the Encyclopedia of New Zealand, <https://teara.govt.nz/en/biographies/1d1/dacre-ranulph> (accessed 30 June 2021)

⁶⁰ Wooller, p. 34

⁶¹ DALDY, William Crush'; Captain WC Daldy; Captain William Crush Daldy; Dugdale, pp. 189-217; Locker, p. 273

⁶² DALDY, William Crush'

⁶³ Captain WC Daldy

⁶⁴ DALDY, William Crush'

of Religion Society, which lobbied against religious schools receiving state funding, and the Young Men's Christian Association.⁶⁵

He married twice: the first time to Frances Harriet Pulham (1820-1877) in 1841. They had four children together: Frances Catherine (1842- 1879), Maryanne Maria Mee (1848 –1926), Edith Crush (1850- 1924) and William Crush Daldy Jr (1852-1934). In 1880, he married Amey Smith nee Hamerton, who was widowed in 1879. Amey is a significant figure in the women's suffrage movement and was supported by her new husband, who even spoke at public meetings. Amey and William raised eight of William's grandchildren after the deaths of his daughter Frances Catherine and son-in-law James Wrigley.⁶⁶ A public park near Silo Park has recently been named Amey Daldy Park.⁶⁷ Captain Daldy's funeral in 1903 was a large one – the *New Zealand Herald* notes that there were 30 carriages in the funeral cortege.⁶⁸

Walter Combes

Walter Alfred Combes (1815-1870) was born in Chichester, England. He arrived in New Zealand in 1840, spending time in the Bay of Islands before settling in Auckland. He was a partner in shipping agents and merchants Dalziel and Co (with John Anderson Brown and Alexander Dalziel) until 1843. He set up with William Crush Daldy to create Combes and Daldy in 1846 and continued in the firm until his death.⁶⁹

Walter Combes married Eleanor Sarah Pulham (c1824-1910) in 1851. They had five children together: Alice, Bertha, Frank Herbert, and Kate (the fifth is not named).⁷⁰ He died in 1870 after a long illness.⁷¹

Henry Palmer

Henry Palmer is another name that features in early lime burning in Warkworth. Henry (c-1834-1897), his wife Eliza (c1841-1914) and their children Sarah Jane, Jackson and Letitia

⁶⁵ Captain WC Daldy

⁶⁶ DALDY, William Crush'; Roberta Nicholls. 'Daldy, Amey', Dictionary of New Zealand Biography, first published in 1993. Te Ara - the Encyclopedia of New Zealand, <https://teara.govt.nz/en/biographies/2d2/daldy-amey> (accessed 17 June 2021)

⁶⁷ New spaces in the city centre - and more coming soon! (2021, May 18) Heart of the City. Retrieved from <https://heartofthecity.co.nz/transforming-city/new-spaces-city-centre-more-coming-soon> 22 June 2021

⁶⁸ Obituary (1903, October 21) *New Zealand Herald*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/NZH19031021.2.67.18> 17 June 2021; William Crush Daldy (1816 - 1903) (2020) Wikitree. Retrieved from <https://www.wikitree.com/wiki/Daldy-4> 17 June 2021

⁶⁹ Untitled (1870, June 4) *Taranaki Herald*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/TH18700604.2.18> 17 June 2021; Advertisements (1843, March 16) *Auckland Times*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/AKTIM18430316.2.8.1> 18 June 2021

⁷⁰ Diaries of Eleanor Sarah Combes, 1855-1872; Walter Alfred Combes (2021) Family Search. Retrieved from <https://ancestors.familysearch.org/en/GQGT-8YV/walter-alfred-combes-1815-1870> 17 June 2021

⁷¹ Untitled (1870, June 4) *Taranaki Herald*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/TH18700604.2.18> 17 June 2021

Palmer arrived in New Zealand from Belfast in 1864.⁷² Henry Palmer either built a flour mill (which was later used as a bone mill) in the 1860s or utilised the existing Brown's mill from 1866 (sources differ).⁷³ Either way, an advertisement from 1867 shows that he was selling flour and corn meal in Auckland city. He called his business Mahurangi Flour and Corn Mills. Palmer was involved in a variety of ventures: timber, farming sheep on Great Barrier Island, roading contracts and mill conversions, as well as lime burning. The family was wealthy enough to employ a governess for their children. Their home in Warkworth was known as Mill View.⁷⁴ Palmer was chairman of Rodney County Council, coroner, and a justice of the peace.⁷⁵ He was declared bankrupt in 1869 and he and his wife later lived in Ponsonby.⁷⁶ Deposited plan DP 417A indicates that Mrs Palmer also owned three acres land near the scheduled lime Combes and Daldy limeworks site in 1883.

Joseph Ragg

Joseph Ragg has been suggested as an operator of the scheduled limeworks. Joseph Higginson Ragg (1833-1898) and his wife Elizabeth Jane nee Wright (1840-1912) were both born in Birmingham and married there in 1858. They settled in New Zealand in 1864 and had six children here. They originally settled in central Auckland but moved to the Mahurangi by 1880, where Joseph was successful as a sailor and master mariner. In 1885, Joseph, Elizabeth and their daughters ran Ragg's Temperance Hotel (usually referred to as 'Mrs Ragg's boarding house' in advertisements) in Warkworth. Captain and Mrs Ragg were managers rather than owners, and Mrs Ragg took over the boarding house and bakery in 1898 after her husband's sudden death of a heart attack.⁷⁷

The former site of Ragg's Temperance Hotel is scheduled as Rodney House/Hinemoa House UPID 00567.

Nathaniel Wilson

The Wilson family is synonymous with the production of Portland cement in New Zealand. Nathaniel Wilson was born in Glasgow in 1836. In 1842, at age six, he arrived in Auckland with his parents William and Isabella on the *Duchess of Argyle*. His family settled in Warkworth in 1858-9 and purchased 130 acres of land south of the village. William set up as a blacksmith and Nathaniel, after spending some time on the Australian goldfields, continued trade as a cobbler. In 1863, he married Florence Snell and they lived above Nathaniel's

⁷² Bernadette Siebert (2021) SJ Moody. Retrieved from <https://nzhistory.govt.nz/suffragist/s-j-moody> 18 June 2021; Gabrielle Wilson (2021) Letitia Angove. Retrieved from <https://nzhistory.govt.nz/suffragist/letitia-angove> 18 June 2021

⁷³ Maureen Young (undated) Be dammed. Retrieved from <https://www.localmatters.co.nz/blogs/6350-be-dammed.html> 18 June 2021; DEATH record for: HENRY PALMER, Registration Number 1897/5539; DEATH record for: ELIZA MAWHINNEY PALMER, Registration Number 1914/10871

⁷⁴ Judy Waters (2012, May 2) Colonist makes his mark in *Mahurangi Matters*. Retrieved from <https://issuu.com/mahurangimatters/docs/may2/26> 18 June 2021

⁷⁵ Locker, pp. 75, 159; Advertisements (1867, July 23) *Daily Southern Cross*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/DSC18670723.2.26.1> 18 June 2021

⁷⁶ In the Supreme Court of New Zealand (1869, February 26) *New Zealand Herald*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/NZH18690226.2.2.4> 18 June 2021; Wilson

⁷⁷ Obituary. (1912, June 5). *Rodney and Otamatea Times, Waitemata and Kaipara Gazette*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/ROTWKG19120605.2.41>; Bernadette Siebert (2021) Elizabeth Raqq. Retrieved from <https://nzhistory.govt.nz/suffragist/elizabeth-raqq> 23 June 2021; Obituary (1912, June 5) *Rodney and Otamatea Times, Waitemata and Kaipara Gazette*. Retrieved from <https://paperspast.natlib.govt.nz/newspapers/ROTWKG19120605.2.41> 23 June 2021

cobbler's shop. Poor health led Nathaniel to take up farming and he purchased a small holding from William Southgate in 1864. He developed an interest in producing lime and by 1866 had a lime kiln on his property. Messrs John Wilson and Company was established in 1870 when James and John Wilson joined their brother in the business. This was timely as the late 1870s saw an increased demand for lime as public works increased under the central government. In the 1880s, Wilson was finally successful in producing the first Portland cement in the Southern hemisphere.⁷⁸ However, in 1929, the works were closed after a merger with several other firms in 1918.⁷⁹

Physical description

The site has extensive remains, including kilns, track/s, site/remains of foreshore landing, buildings, tramway, and quarry.

Wooller's site visit showed three kilns, which are 10 metres from the water's edge. The kilns are carved into the bank and accessed via horizontal tunnels. Evidence of a hearth structure remains, as does brickwork remains in the westernmost kiln. Wooller notes 'The inside walls of the kilns have visible pick marks, burnt patches, and a chalky white substance on the roof and walls... The kilns have vertical chimney shafts, the top of which are visible in the terrace above the kilns.'⁸⁰

Limestone was brought to the kilns on a tramline and emptied into the kilns and tramline earthworks can still be seen. There is also a lower terrace which may have been a yard, the remains of a track, a three-pronged ditch, and a landing site consisting of a large log which may have been filled in with loose rock. Crop markings have also been identified.⁸¹

Additions and alterations

In 1952, Donald Vipond built a residence on the site; in 1981 he extended the property.⁸² He built a 'home workshop' in 1969.⁸³ These structures are close to the road, rather than the waterside. Between 2001 and 2017, a driveway or path deeper into the section has been constructed. This can be seen in aerial photographs.

Author: Marguerite Hill, Heritage Researcher, September 2021

⁷⁸ Dave Pearson Architects, pp. 6-8, 12

⁷⁹ IPENZ

⁸⁰ Wooller, p. 49

⁸¹ Wooller, p. 50

⁸² Rodney County Council? (1952) Application/specifications. BPA-390 - Application - BPA 390 APPLIC.tif; Rodney County Council (1981) Building permit application. BPA-91168 - Application - BPA 91168 APPLIC.TIF

⁸³Warkworth Town Council (1969) Application for a building permit. BPA-68628 - Application - BPA 68628.tif

APPENDIX 2: AUP E11.6.1 / E12.6.1 ACCIDENTAL DISCOVERY RULE

E11.6.1. Accidental discovery rule:

(1) Despite any other rule in this Plan permitting earthworks or land disturbance or any activity associated with earthworks or land disturbance, in the event of discovery of sensitive material which is not expressly provided for by any resource consent or other statutory authority, the standards and procedures set out in this rule must apply.

(2) For the purpose of this rule, 'sensitive material' means:

(a) human remains and kōiwi;

(b) an archaeological site;

(c) a Māori cultural artefact/taonga tuturu;

(d) a protected New Zealand object as defined in the Protected Objects Act 1975 (including any fossil or sub-fossil);

(e) evidence of contaminated land (such as discolouration, vapours, asbestos, separate phase hydrocarbons, landfill material or significant odour); or

(f) a lava cave greater than 1m in diameter on any axis.

(3) On discovery of any sensitive material, the owner of the site or the consent holder must take the following steps:

Cease works and secure the area

(a) immediately cease all works within 20m of any part of the discovery, including shutting down all earth disturbing machinery and stopping all earth moving activities, and in the case of evidence of contaminated land apply controls to minimise discharge of contaminants into the environment;

(b) secure the area of the discovery, including a sufficient buffer area to ensure that all sensitive material remains undisturbed; Inform relevant authorities and parties

(c) inform the following parties immediately of the discovery:

(i) the New Zealand Police if the discovery is of human remains or kōiwi;

(ii) the Council in all cases;

(iii) Heritage New Zealand Pouhere Taonga if the discovery is an archaeological site, Māori cultural artefact, human remains or kōiwi; and

(iv) Mana Whenua if the discovery is an archaeological site, Māori cultural artefact, or kōiwi.

Wait for and enable inspection of the site

(d) wait for and enable the site to be inspected by the relevant authority or agency:

(i) if the discovery is human remains or kōiwi the New Zealand Police are required to investigate the human remains to determine whether they are those of a missing person or are a crime scene. The remainder of this process will not apply until the New Zealand Police confirm that they have no further interest in the discovery; or

(ii) if the discovery is of sensitive material, other than evidence of contaminants, a site inspection for the purpose of initial assessment and response will be arranged by the Council in consultation with Heritage New Zealand Pouhere Taonga and appropriate Mana Whenua representatives; or E11 Land disturbance – Regional Auckland Unitary Plan Operative in part 11

(iii) if the discovery is evidence of contaminants, a suitably qualified and experienced person is required to complete an initial assessment and provide information to the Council on the assessment and response.

(e) following site inspection and consultation with all relevant parties (including the owner and consent holder), the Council will determine the area within which work must cease, and any changes to controls on discharges of contaminants, until the requirements of step E11.6.1(3)(f) are met;
Recommencement of work

(f) work within the area determined by the Council at step E11.6.1(3)(e) must not recommence until all of the following requirements, so far as relevant to the discovery, have been met:

(i) Heritage New Zealand has confirmed that an archaeological authority has been approved for the work or that none is required;

(ii) any required notification under the Protected Objects Act 1975 has been made to the Ministry for Culture and Heritage;

(iii) the requirements of Section E30 Contaminated land and/or the National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 have been met;

(iv) any material of scientific or educational importance has been recorded and if appropriate recovered and preserved;

(v) if the discovery is a lava cave as outlined in E11.6.1(2)(f) above and if the site is assessed to be regionally significant, reasonable measures have been taken to minimise adverse effects of the works on the scientific values of the site; and

(vi) where the site is of Māori origin and an authority from Heritage New Zealand Pouhere Taonga is not required the Council will confirm, in consultation with Mana Whenua, that:

- any kōiwi have either been retained where discovered or removed in accordance with the appropriate tikanga; and
- any agreed revisions to the planned works to be/have been made in order to address adverse effects on Māori cultural values.

(vii) resource consent has been granted for any alteration or amendment to the earthworks or land disturbance that may be necessary to avoid the sensitive materials and that is not otherwise permitted under the Plan or allowed by any existing resource consent; and

(viii) that there are no requirements in the case of archaeological sites that are not of Māori origin and are not covered by the Heritage New Zealand Pouhere Taonga Act 2014.

APPENDIX 3: HERITAGE NZ AUTHORITY



HERITAGE NEW ZEALAND
POUHERE TAONGA

S:\Archaeology\Archaeological Authorities

21 June 2021

File ref: 2021/753
11013-006

The Kilns Limited
PO Box 307,
Matakana,
Auckland, 0948.

Attn. Denis Horner

Tēnā koe Denis

**APPLICATION FOR ARCHAEOLOGICAL AUTHORITY UNDER HERITAGE NEW ZEALAND
POUHERE TAONGA ACT 2014: Authority no. 2021/753: R09/2240, 36 Sandspit Road,
Warkworth, Auckland**

Thank you for your application for an archaeological authority which has been granted and is attached.

In considering this application, Heritage New Zealand Pouhere Taonga notes that you wish to undertake an exploratory archaeological investigation at 36 Sandspit Road, Warkworth. This activity will affect the extent of a recorded archaeological site. Site R09/2240, the Combes/Dalby Limeworks, was in operation from the mid to late 19th Century. The purpose of the investigation is to establish the extent of any subsurface archaeological evidence to enable specific management procedures for the site.

The area is of significance to Ngāti Manuhiri and we appreciate the consultation you have undertaken.

Please inform tangata whenua, the s43 approved person and Heritage New Zealand Pouhere Taonga of start and finish dates for the work.

An appeal period from receipt of decision by all parties applies. Therefore this authority may not be exercised during the appeal period of 15 working days, or until any appeal that has been lodged is resolved.

If you have any queries, please direct your response in the first instance to:

Greg Walter
Archaeologist
Heritage New Zealand Pouhere Taonga, Auckland Office
P O Box 105-291, Auckland 1143

Phone (09) 307 9924 Email ArchaeologistMN2@heritage.org.nz

Nāku noa, nā



Vanessa Tanner
Manager Archaeology

- cc: Denis Homer, The Kilns Limited
via email at homers@xtra.co.nz
- cc: Adina Brown, Plan Heritage
via email at info@planheritage.co.nz
- cc: Courtney Shaw, Ngāi Manuhiri
via email at C.Shaw@ngatimanuhiri.iwi.nz; info@ngatimanuhiri.iwi.nz

- cc: Chris Garner
via email at kawaberging@hotmail.com

- cc: Team Leader Cultural Heritage Implementation
Auckland Council
via email to heritageconsents@aucklandcouncil.govt.nz

- cc: Property Records and Files
Auckland Council
via email to records@aucklandcouncil.govt.nz

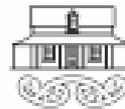
Pursuant to Section 51 Heritage New Zealand Pouhere Taonga Act 2014 Heritage New Zealand Pouhere Taonga must notify TLAs of any decision made on an application to modify or destroy an archaeological site. We recommend that this advice is placed on the appropriate property file for future reference.

- cc: Ministry for Culture and Heritage
via email at protected-objects@mch.govt.nz

Pursuant to Section 51 Heritage New Zealand Pouhere Taonga Act 2014

- cc: NZAA Central Filekeeper
Attn: Mary O'Keeffe
via email at centralfilekeeper@archsite.org.nz

- cc: Heritage New Zealand Pouhere Taonga Archaeologist, Dr Sarah Phear
- cc: Heritage New Zealand Pouhere Taonga Area Manager, Mid Northern, Bev Parslow
- cc: Heritage New Zealand Pouhere Taonga Director, Northern Region, Sherry Reynolds
- cc: Heritage New Zealand Pouhere Taonga Tuakana Pouarahi and Kaiurungshoe Māori Heritage Team Leader Northern Region, Makiere Rika-Heke



HERITAGE NEW ZEALAND
POUHERE TAONGA

AUTHORITY

Heritage New Zealand Pouhere Taonga Act 2014

AUTHORITY NO: 2021/753

FILE REF: 11013-006

DETERMINATION DATE: 21 June 2021

EXPIRY DATE: 21 June 2026

AUTHORITY HOLDER: The Kilns Limited

POSTAL ADDRESS: PO Box 307, Matakana, Auckland, 0948. Attn Denis Horner

ARCHAEOLOGICAL SITES: R09/2240

LOCATION: 36 Sandspit Road, Warkworth, Auckland

SECTION 45 APPROVED PERSON: Adina Brown

LANDOWNER CONSENT: Completed

This authority may not be exercised during the appeal period of 15 working days, or until any appeal that has been lodged is resolved.

DETERMINATION

Heritage New Zealand Pouhere Taonga grants an authority pursuant to section 36 of the Heritage New Zealand Pouhere Taonga Act 2014 in respect of the archaeological site described above, within the area specified as Pt Lot 51 DP 703 and Lot 1 DP 30534 to The Kilns Limited for the proposal to undertake an exploratory archaeological investigation and geotechnical testing at 36 Sandspit Road, Warkworth, Auckland, subject to the following conditions:

CONDITIONS OF AUTHORITY

1. Prior to the start of any on-site archaeological work, the Authority Holder must ensure that Heritage New Zealand Pouhere Taonga is advised of the date when work will begin. This advice must be provided at least 2 working days before work starts. The Authority Holder must also ensure that Heritage New Zealand Pouhere Taonga is advised of the completion of the on-site archaeological work, within 3 working days of completion.

2. The authority must be exercised in accordance with the management plan (Brown. A. May 2021 (updated 02/06/2021). Combes/Dalidy Limeworks 36 Sandspit Road, Warkworth, Auckland: Archaeological Investigation Strategy) attached to the authority application. Any changes to the plan require the prior written agreement of Heritage New Zealand Pouhere Taonga.
3. Any archaeological evidence encountered during the exercise of this authority must be investigated, recorded and analysed in accordance with current archaeological practice.
4. The authority holder must ensure that if any possible taonga or Māori artefacts, or sites of Māori origin are encountered, all work should cease within 20 metres of the discovery. The Heritage New Zealand Pouhere Taonga Archaeologist must be advised immediately and no further work in the area may take place until they have responded.
5. That within 20 working days of the completion of the on-site archaeological work associated with this authority;
 - a) An interim report outlining the archaeological work undertaken must be submitted to the Heritage New Zealand Pouhere Taonga Archaeologist for inclusion in the Heritage New Zealand Pouhere Taonga Archaeological Reports Digital Library.
 - b) Site record forms must be updated or submitted to the NZAA Site Recording Scheme.
6. That within 12 months of the completion of the on-site archaeological work, the authority holder shall ensure that a final report, completed to the satisfaction of Heritage New Zealand Pouhere Taonga, is submitted to the Heritage New Zealand Pouhere Taonga Archaeologist for inclusion in the Heritage New Zealand Pouhere Taonga Archaeological Reports Digital Library.
 - a) One hard copy and one digital copy of the final report are to be sent to the Heritage New Zealand Pouhere Taonga Archaeologist.
 - b) Digital copies of the final report must also be sent to: the NZAA Central Filekeeper; Auckland Museum, Auckland Council CHI and Ngati Manuhiri

Signed for and on behalf of Heritage New Zealand.



Claire Craig
Deputy Chief Executive Policy, Strategy and Corporate Services
Heritage New Zealand Pouhere Taonga
PO Box 2629
WELLINGTON 6140

Date 21 June 2021

ADVICE NOTES**Contact details for Heritage New Zealand Archaeologist**

Greg Walter
Archaeologist
Heritage New Zealand Pouhere Taonga, Auckland Office
P O Box 105-291, Auckland 1143

Phone (09) 307 9924 Email ArchaeologistMN2@heritage.org.nz

Current Archaeological Practice

Current archaeological practice may include, but is not limited to, the production of maps/ plans/ measured drawings of site location and extent; excavation, section and artefact drawings; sampling, identification and analysis of faunal and floral remains and modified soils; radiocarbon dating of samples; the management of taonga tūturu and archaeological material; the completion of a final report and the updating of existing (or creation of new) site record forms to submit to the NZAA Site Recording Scheme. The final report shall include, but need not be limited to, site plans, section drawings, photographs, inventory of material recovered, including a catalogue of artefacts, location of where the material is currently held, and analysis of recovered material.

Please note that where one is required, an interim report should contain a written summary outlining the archaeological work undertaken, the preliminary results, and the approximate percentage of archaeological material remaining *in-situ* and a plan showing areas subject to earthworks, areas monitored and the location and extent of any archaeological sites affected or avoided.

Reporting Conditions

In relation to the creation of reports as required by the authority conditions, Heritage New Zealand Pouhere Taonga supports transparent reporting processes. It therefore is expected that all relevant directly affected parties have reviewed the report in question, are happy with its contents, and understand that it will be made publically available via the Heritage New Zealand Pouhere Taonga Archaeological Reports Digital Library.

Heritage New Zealand Pouhere Taonga has the right to make available any report produced under an authority where the distribution of the report is for the purpose of providing archaeological information about the place in question for research or educational purposes.

Rights of Appeal

An appeal to the Environment Court may be made by any directly affected person against any decision or condition. The notice of appeal should state the reasons for the appeal and the relief sought and any matters referred to in section 38 of the Heritage New Zealand Pouhere Taonga Act 2014. The notice of appeal must be lodged with the Environment Court and served on Heritage New Zealand Pouhere Taonga within 15 working days of receiving the determination and served on the applicant or owner within five working days of lodging the appeal.

Review of Conditions

The holder of an authority may apply to Heritage New Zealand Pouhere Taonga for the change or cancellation of any condition of the authority. Heritage New Zealand Pouhere Taonga may also initiate a review of all or any conditions of an authority.

Non-compliance with conditions

Note that failure to comply with any of the conditions of this authority is a criminal offence and is liable to a penalty of up to \$120,000 (Heritage New Zealand Pouhere Taonga Act 2014, section 88).

Costs

The authority holder shall meet all costs incurred during the exercise of this authority. This includes all on-site work, post fieldwork analysis, radiocarbon dates, specialist analysis and preparation of interim and final reports.

Assessment and Interim Report Templates

Assessment and interim report templates are available on the Heritage New Zealand Pouhere Taonga website: archaeology.nz

Guideline Series

Guidelines referred to in this document are available on the Heritage New Zealand Pouhere Taonga website: archaeology.nz

The Protected Objects Act 1975

The Ministry for Culture and Heritage ("the Ministry") administers the Protected Objects Act 1975 which regulates the sale, trade and ownership of taonga tūturu.

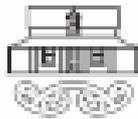
If a taonga tūturu is found during the course of an archaeological authority, the Ministry or the nearest public museum must be notified of the find within 28 days of the completion of the field work.

Breaches of this requirement are an offence and may result in a fine of up to \$10,000 for each taonga tūturu for an individual, and of up to \$20,000 for a body corporate.

For further information please visit the Ministry's website at <http://www.mch.govt.nz/nz-identity-heritage/protected-objects>.

Landowner Requirements

If you are the owner of the land to which this authority relates, you are required to advise any successor in title that this authority applies in relation to the land. This will ensure that any new owner is made aware of their responsibility in regard to the Heritage New Zealand Pouhere Taonga Act 2014.



HERITAGE NEW ZEALAND
POUHERE TAONGA

SECTION 45 APPROVED PERSON

Heritage New Zealand Pouhere Taonga Act 2014

AUTHORITY NO: 2021/753

FILE REF: 11013-006

APPROVAL DATE: 21 June 2021

This approval may not be exercised during the appeal period of 15 working days, or until any appeal that has been lodged is resolved.

APPROVAL

Pursuant to section 45 of the Act, Adina Brown, is approved by Heritage New Zealand Pouhere Taonga to carry out any archaeological work required as a condition of authority 2021/753, and to compile and submit a report on the work done. Adina Brown will hold responsibility for the current archaeological practice in respect of the archaeological authority for which this approval is given.

Signed for and on behalf of Heritage New Zealand,

A handwritten signature in blue ink, appearing to read 'Claire Craig'.

Claire Craig
Deputy Chief Executive Policy, Strategy and Corporate Services
Heritage New Zealand Pouhere Taonga
PO Box 2629
WELLINGTON 6140

Date 21 June 2021

APPENDIX 4: ASSESSMENT METHODOLOGY

The effects that must be addressed in an AEE are set out in clause 7 of Schedule 4 of the Resource Management Act and as follows:

- effects on those in the neighbourhood and, where relevant, the wider community including any social, economic and cultural effects
- physical effects on the locality including landscape and visual effects
- effects on ecosystems including effects on plants or animals and the physical disturbance of habitats in the vicinity
- effects on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual or cultural, or other special value for present or future generations
- any discharge of contaminants into the environment, including any unreasonable emission of noise and options for the treatment and disposal of contaminants
- any risk to the neighbourhood, wider community or the environment through natural hazards or the use of hazardous substances or hazardous installations.

The requirement to address a matter in the assessment of environmental effects is subject to the provision of any relevant policy statement which may direct and/or restrict the assessment to certain matters.

The terms 'effect' and 'environment' under the RMA are broadly defined. It is the role of the AEE to identify and address actual and potential effects of a proposal on a particular environment. The term effect includes:

- **Positive and adverse effects** - both of these effects should be considered regardless of their scale and duration. It is also important to remember that the assessment is not about achieving a balance between the two but ensuring adverse effects are avoided, remedied or mitigated.
- **Temporary and permanent effects** - there are many effects associated with proposals that are often temporary, such as those relating to a temporary event. It is important to make the distinction in the assessment between effects that are temporary versus those that are permanent. If there is only a temporary non-compliance with rules in a plan or regulations, and the adverse effects of that aspect are not discernible from those of permitted activities, the council has the discretion to treat the activity as a permitted activity and issue a written notice to that effect, and return the application. See s87BB RMA. For further information on this process, refer to the MfE technical guidance on deemed permitted activities.
- **Past, present and future effects** - in addition to past and present effects it is also important to consider forecast effects as some effects may take time to show and consideration should be given as to whether these effects are of high or low probability at any time in the future.
- Any **cumulative effects** regardless of degree or element of risk - an adverse cumulative effect is an effect, when combined with other effects, is significant only when it breaches a threshold. It should not be confused with matters relating to precedent.
- Any **reverse sensitivity effects** - situations where a potentially incompatible land use is proposed to be sited next to an existing land use.
- Subject to the provisions of any policy statement or plan, all of these effects must be considered in the AEE regardless of their scale, intensity, duration, or frequency. It should

also be considered whether potential effects are of high and/or low probability and could have a high potential impact³¹

Table for Determining Scale of Effects

VALUE					
Outstanding (very high) 5	Nil (0)	Little/ Minor (10)	Moderate / More Minor (15)	Significant (20)	Critical / Significant (25)
Considerable (high) 4	Nil (0)	Little/ Minor (8)	Moderate / More Minor (12)	Moderate / Significant (16)	Significant (20)
Moderate (medium) 3	Nil (0)	Negligible / Less Minor (6)	Little / Minor (9)	Moderate / More Minor (12)	Moderate / More Minor (15)
Little (low) 2	Nil (0)	Negligible / Less Minor (4)	Negligible / Less Minor (6)	Little / Minor (9)	Little/ Minor (10)
Negligible 1	Nil (0)	Negligible / Less Minor (2)	Negligible / Less Minor (3)	Negligible / Less Minor (4)	Negligible / Less Minor (5)
None 0	Nil (0)	Nil (0)	Nil (0)	Nil (0)	Nil (0)
	No Change 0	Low 2	Moderate 3	High 4	Very High 5
IMPACT					

This scale is adapted from EIA Good Practice examples (e.g. UK Design Manual Roads and Bridges / NZILA / ICOMOS NZ) to incorporate common terminology used in the New Zealand RMA Planning Context, and the recommended scaling of effects described in MfE and Quality Planning Website documents. Numerical values are provided to demonstrate relative weighting of effects.

Effects to historic heritage values are considered using the following scale and may be classed as Temporary, Permanent; Adverse or Beneficial.

³¹ Source: <https://www.qualityplanning.org.nz/node/836>

Magnitude of Effect	Adverse Effects
Critical / Significant	Significant unacceptable adverse effects that cannot be avoided or mitigated. Most, or key, statutory objectives are not met.
Significant	Significant adverse effects that is noticeable and will have a serious adverse impact on the environment but may be avoided or mitigated. Some key statutory objectives are not met
Moderate / More minor	Adverse effects that are noticeable that may cause an adverse impact but could be potentially mitigated or remedied and may be acceptable. Key statutory objectives are met, but not all
Little / Minor	Adverse effects that are noticeable but will not cause any significant adverse impacts, and may also be further avoided or mitigated. Most or all statutory objectives are met
Negligible / Less Minor	Adverse effects that are acceptable, and may not require further mitigation. They are discernible day-to-day effects, but too small to adversely affect other persons. Statutory objectives are met
None	No effect/Neutral
Intrusive*	Removal of an intrusive feature is always beneficial effect as intrusive aspects by nature are detrimental

Magnitude of Effect	Beneficial Effects
Critical	Beneficial effects which strongly enhance historic heritage values and support statutory objectives
Significant	Beneficial effects which positively enhance historic heritage values and support most statutory objectives
Moderate / More minor	Beneficial effects which maintain or slightly enhance historic heritage values and support some statutory objectives
Little / Minor	Beneficial effects which slightly maintain or slightly enhance historic heritage values
Negligible / Less Minor	Beneficial effects which maintain historic heritage values to a limited degree
None	No effect/Neutral
Intrusive*	Removal of an intrusive feature is always beneficial effect as intrusive aspects by nature are detrimental

*(Where a particular feature is identified as intrusive in a conservation plan / heritage assessment)

APPENDIX 5: EXPERT STATEMENTS

JOHN BROWN MA ACIfA
Director

Plan.Heritage
E: info@planheritage.co.nz
T: +6494458953
JB: +642102973641



Personal Statement

I am a director of Plan.Heritage Limited and have over 25 years of experience internationally in the heritage sector. My company provides specialist built heritage, planning and archaeological consultancy services to a range of clients. We have a particular focus on providing historic heritage services for resource consent and subdivision consent applications, as well as plan changes (private or Council). This typically includes heritage impact assessments, character assessments and AEE's through the Resource Management Act 1991. In addition we undertake historic heritage evaluations (to determine eligibility for scheduling) and conservation plans (to support management of heritage assets). We also carry out archaeological assessments and authorities under the Heritage New Zealand Pouhere Taonga Act 2014. Prior to establishing the company in 2015, I was the 'Team Leader: Built Heritage Implementation' at Auckland Council Heritage Unit, for four years. Before I moved to New Zealand I worked in a variety of heritage roles within the public and private sectors in the UK.

About Plan.Heritage

Plan.Heritage is a husband-and-wife team with a combined 46 years of NZ and international heritage consultancy and contracting experience in the planning environment. We have worked for international consultancies, archaeological contractors, museums, local government and national heritage organisations. Because of this experience, we can provide high quality advice based on a sound understanding of the requirements of national organisations, corporate entities, developers, private individuals, or public heritage portfolio managers. We believe that conservation is a process of managing significant places in a way that reveals or reinforces the heritage values of that place. But equally we should not fear change as part of this process, based on sound decision making and ensuring the future of places are sustainable. We aim to plan for the future of our heritage.

Qualifications and certification

- Bachelor of Archaeology (BA) from the University of Newcastle-upon-Tyne (UK)
- Masters of Archaeology (and Cultural Heritage) University of London, Institute of Archaeology (UK)
- ICOMOS NZ Member
- Member of the New Zealand Archaeological Association
- Associate member of the Chartered Institute for Archaeologists (UK)

- Affiliate member of the Institute of Historic Building Conservation (UK).
- PRINCE2 Foundation level project management certification
- David Young course on conservation of historic building materials
- Site Safe Passport, Construct Safe Passport
- Full UK/NZ international Driving Licence

Experience

- Historic environment master planning, strategic analysis for multicriteria projects
- Built heritage consultancy, Heritage evaluations, historic building survey
- Conservation planning, Heritage policy analysis, resource consents
- Expert Witness (Council Hearings, Environment Court, High Court)
- Project management
- Archive research, Heritage landscape analysis
- Archaeological consultancy, assessment and fieldwork
- Study and analysis of archaeological artefacts
- Business development and business planning
- Team and project management, client relationships
- Analysis and problem solving, creative thinking
- Project and systems design
- Communications, oral presentations
- Engagement and relationship management with key stakeholders and statutory bodies
- Working with mana whenua
- Community engagement, public consultation and museum experience
- Project archive and post-fieldwork management

STATEMENT OF EXPERIENCE – Adina Brown

ADINA BROWN MA MSc
Director

Plan.Heritage

E: info@planheritage.co.nz

T: +6494458953

AB: +642102973633



Personal Statement

I am a director of Plan.Heritage Limited, which provides specialist built heritage, planning and archaeological consultancy services to a range of clients. We have a particular focus on providing historic heritage services for resource consent and subdivision consent applications, as well as plan changes (private or Council). This typically includes heritage impact assessments, character assessments and AEE's through the Resource Management Act 1991. In addition we undertake historic heritage evaluations (to determine eligibility for scheduling) and conservation plans (to support management of heritage assets). We also carry out archaeological assessments and authorities under the Heritage New Zealand Pouhere Taonga Act 2014. Prior to establishing the company I worked for two years as a Principal Specialist Built Heritage for Auckland Council and spent nine years working in London at English Heritage, which is the UK Government advisor on the historic environment. I have over 20 years of experience in heritage management in the public and private sectors.

About Plan.Heritage

Plan.Heritage is a husband-and-wife team with a combined 46 years of NZ and international heritage consultancy and contracting experience in the planning environment. We have worked for international consultancies, archaeological contractors, museums, local government and national heritage organisations. Because of this experience, we can provide high quality advice based on a sound understanding of the requirements of national organisations, corporate entities, developers, private individuals, or public heritage portfolio managers. We believe that conservation is a process of managing significant places in a way that reveals or reinforces the heritage values of that place. But equally we should not fear change as part of this process, based on sound decision making and ensuring the future of places are sustainable. We aim to plan for the future of our heritage.

Qualifications and certification

- 2009 University College London, Bartlett School of Planning MSc Spatial Planning
- 2007 Certificate in Prince 2 Foundation for Project Management
- 2004 University College London, Institute of Archaeology MA Managing Archaeological Sites
- 2002 Auckland University, New Zealand, BA Anthropology (Archaeology)
- 2002 Auckland University, New Zealand, BSc Geology

- Member of the New Zealand Archaeological Association
- 2004 – 2011 Associate of the Institute of Field Archaeologists
- 2009 - 2011 Licentiate of the Royal Town Planning Institute
- Site Safe Passport, Construct Safe Passport
- Full UK/NZ international Driving Licence

Experience

- Historic environment master planning, strategic analysis for multicriteria projects
- Built heritage consultancy, Heritage evaluations, historic building survey
- Conservation planning, Heritage policy analysis, resource consents
- Expert Witness (Council Hearings, Environment Court, High Court)
- Project management
- Archive research, Heritage landscape analysis
- Archaeological consultancy, assessment and fieldwork
- Study and analysis of archaeological artefacts
- Business development and business planning
- Team and project management, client relationships
- Analysis and problem solving, creative thinking
- Project and systems design
- Communications, oral presentations
- Engagement and relationship management with key stakeholders and statutory bodies
- Working with mana whenua
- Community engagement, public consultation and museum experience
- Project archive and post-fieldwork management

