

PROPOSED PLAN CHANGE 11 TO THE WAIPA DISTRICT PLAN – BARDOWIE INDUSTRIAL PRECINCT : ARCHAEOLOGICAL ASSESSMENT

Prepared for Bardowie Investments Ltd

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EXECUTIVE SUMMARY

An archaeological assessment has been commissioned by Bardowie Investments Ltd to establish whether proposed Plan Change 11 to the Waipa District Plan (Bardowie Industrial Precinct) is likely to impact on archaeological values. This report has been prepared as part of the required assessment of effects accompanying a plan change application under the Resource Management Act 1991 (RMA) and to identify any requirements under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA). Recommendations are made in accordance with statutory requirements. Once future development plans become available this report will require updating, with additional surveys (if required) and detailed assessment of the proposed development.

Three archaeological sites have been previously recorded in the proposed plan change area: S15/474, S15/475 and S15/476. All are 'borrow pits' associated with Maori gardening and are a common site type in the area and part of the broader archaeological landscape. Borrow pits are often associated with gardening soils, but the presence of such soils could not be confirmed during the survey for this assessment. The survey was able to identify six borrow pits near recorded site S15/474 and one borrow pit at S15/475. No visible archaeological remains were able to be identified at S15/476. However, borrow pits are generally quite deep features and more pits related to these sites are likely to be present subsurface. There is also potential for additional subsurface archaeological features to be present elsewhere, especially as much of the ground surface has been modified by agricultural and other activities, which would have obscured surface evidence.

The archaeological value of the three archaeological sites is considered to be limited, based on the fact that they are a common site type and their creation and usage have been thoroughly studied in past investigations. Avoidance of the archaeological sites should, however, be considered in future development plans, but if this is not feasible the potential effects of future development are considered to be minor. The potential effects on archaeological values can be appropriately mitigated through archaeological investigation and recording to recover information relating to the Maori settlement history of the area, under the provisions of the HNZPTA. Recommendations based on further assessment, once future development plans become available, are likely to include the following:

- If any of the recorded sites cannot be avoided, an Authority must be applied for under Section 44(a) of the HNZPTA and granted by Heritage NZ prior to the start of any works that will affect them. (*Note that this is a legal requirement*).
- Because it is likely that additional unrecorded sites may be exposed during earthworks, all future development works within the Bardowie Industrial Precinct should be included under an Authority to prevent delays if additional sites are discovered when works are under way.
- Archaeological monitoring of top soil stripping should be undertaken in appropriate areas based on the findings of the further assessment.
- The tangata whenua should be consulted regarding the cultural effects of the possible future development. This will also be required as part of the authority application.

INTRODUCTION

Project Background

Bardowie Investments Ltd (BIL) is purchasing approximately 50 hectares of land from Fonterra Ltd which currently forms part of the Bardowie Farm located at Hautapu, north of Cambridge. The property is adjacent to SH18 to the west and SHI (the Waikato Expressway) to the south. Together with an area of adjoining land on which Shoof International Ltd is located, BIL is advancing an application to the Waipa District Council for a Private Plan Change to rezone the land to Industrial Zone – to be referred to as the Bardowie Industrial Precinct in this report (Figure 1 and Figure 2). Approximately two thirds of the land in question is zoned Deferred Industrial Zone in the Waipa District Plan, while the balance is zoned Rural Zone. The whole area is identified in the Waipa District Plan as Industrial Growth Cell C10. The legal description of the properties to be included in the Private plan change is as follows: Lot 2 DPS 31840, Sec 30 SO 457816 and Sec 33 SO 457816 (Bardowie Farm) and Lot 1 DP 406177, Lot 1 401490, Lot 1 DPS 80707 and Lot 2 DP 406177 (Shoof land).

An archaeological assessment was commissioned by Bardowie Investments Ltd to establish whether the proposed private plan change is likely to impact on archaeological values. This report has been prepared as part of the required assessment of effects accompanying a plan change application under the Resource Management Act 1991 (RMA) and to identify any requirements under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA). Recommendations are made in accordance with statutory requirements.

Methodology

The New Zealand Archaeological Association's (NZAA) site record database (ArchSite), Waipa District Plan schedules and the Heritage New Zealand Pouhere Taonga (Heritage NZ) New Zealand Heritage List/Rārangī Kōrero were searched for information on sites recorded in the vicinity. Literature and archaeological reports relevant to the area were consulted (see Bibliography). Early survey plans and aerial photographs were checked and archival research was carried out to establish the history of the property.

A visual inspection of the property was conducted on 25 July 2018. The ground surface was examined for evidence of former occupation (in the form of shell midden, depressions, terracing or other unusual formations within the landscape, or indications of 19th century European settlement remains). Exposed and disturbed soils were examined where encountered for evidence of earlier modification, and an understanding of the local stratigraphy. Subsurface testing with a probe and spade was carried out to determine whether buried archaeological deposits could be identified or establish the nature of possible archaeological features. The locations of the three recorded archaeological sites on the property were visited and site records updated.

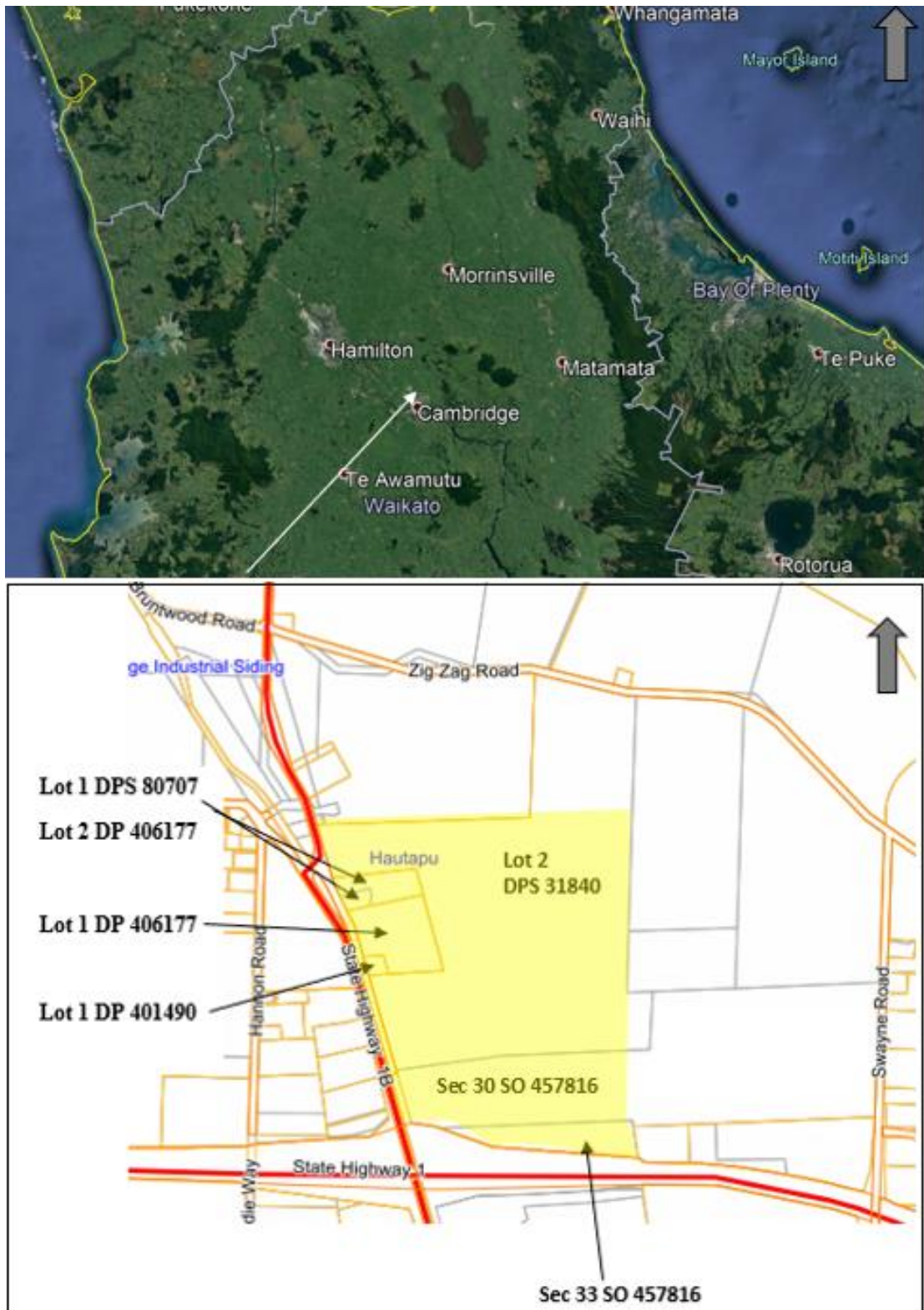


Figure 1. Upper aerial showing the regional location of the Bardowie Industrial precinct indicated by white arrow (Google Earth); with the affected properties shown in lower plan (source: Waipa District Intramaps)

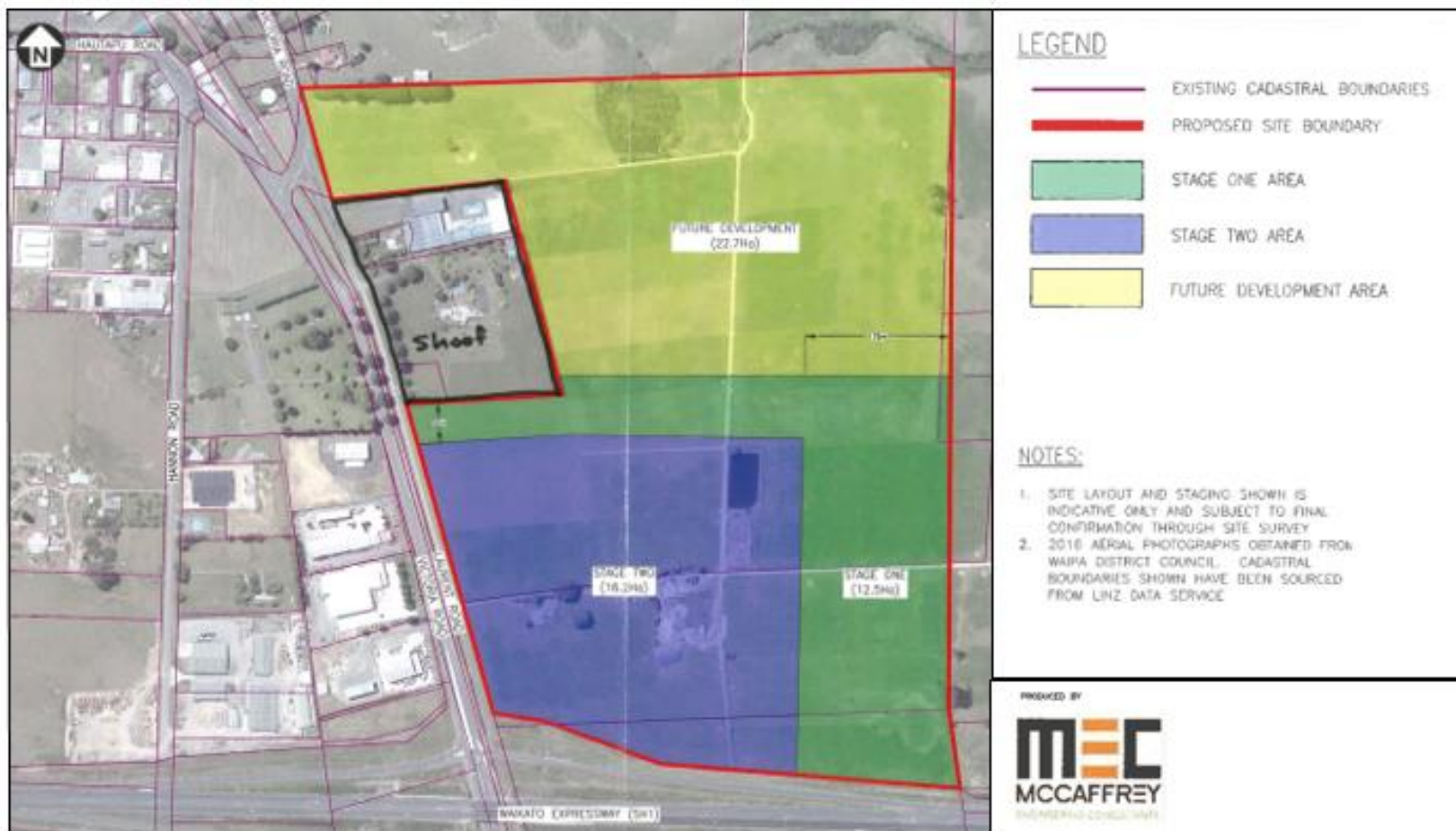


Figure 2. Plan showing the boundary of the Bardowie industrial Precinct (source: McCaffrey)

HISTORICAL BACKGROUND

Maori Settlement

In oral tradition the Tainui canoe, captained by chief Hoturoa made its final landfall at Kawhia some 800 years ago. The canoe had travelled around various parts of the central North Island, including the Bay of Plenty, the Coromandel, the Manukau Heads and the Hauraki Gulf, with some people leaving the voyage and settling in these areas (Te Ara 1).

Hoturoa is said to have made his base at Kawhia and over the years the Tainui people expanded inland from there. This included movement into the Waikato and Maori settlements spread throughout the region, with many concentrated along the coast to exploit the rich resources available there. Further inland, settlements were made along navigable waterways, such as the Waikato and Waipa Rivers and their tributaries, with numerous pa sites identified as well as gardening and food storage sites. Intertribal conflicts occurred periodically as a result of alliances, disputes and competition for resources. In the late 18th century there was a major encounter near Ohaupo referred to as the battle of Hingakaka, which saw the defeat of Ngati Toa by the Waikato tribes (Sole 2005: 137).

During the early years of the 19th century contact with European traders and missionaries increased, one result being the introduction of muskets into Maori intertribal conflicts. In the early years the northern tribes were the first to arm themselves in this way and gained some advantage in battles with tribes who had not obtained such weaponry. However, by the 1830s most tribes were more or less equally equipped and were unable to sustain the long-term and large-scale warfare often referred to as 'The Musket Wars' that had occurred over the previous two decades.

The New Zealand Wars

In the years that followed, European influence increased and conflicts between Maori and the colonial government over the European demand for land became an ongoing issue, resulting in open conflict by the early 1840s. Contentious land sales, and the demands of settlers for land that was not properly secured, continued to result in conflicts and in 1845-46 these were centred in the north. However, confrontations between Maori and government forces continued with skirmishes, raids and battles taking place to the south, in the Hutt Valley and Wanganui in the late 1840s (Cowan 1955: 100-103; 143-144).

Tensions between Maori and the government continued to worsen and in 1858 resulted in the founding of the King Movement (Kingitanga) in the Waikato. This movement aimed to unite Maori under a single leader to strengthen their ability to oppose the loss of their land from the growing demands of the ever-increasing number of European settlers arriving in New Zealand (Belich 1986).

The Waikato, with its proximity to Auckland and now as the seat of the King movement, was a concern to the government and on 11 July 1863, the governor of New Zealand, Sir George Grey, issued an ultimatum to the chiefs of the Waikato, ordering that they pledge allegiance to Queen Victoria or face the consequences. Without providing adequate time for the Maori leaders to respond, on 12 July, British forces marched into the territory of the Maori King, crossing the boundary (aukati) between the Pakeha and Maori lands and marking the beginning of the Invasion of the Waikato (Belich 1986; New Zealand History Website). The Waikato campaign lasted for nine months and ended with the Maori defeat

at Orakau Pa in April 1864. At this time, a new boundary (autaki) was established south of the Punui River, leaving the land to the north in the hands of the government (Cowan 1955: 408-410).

The Waikato Militia and Military Settlement

Just after the outbreak of hostilities in the Waikato, the government had devised a scheme to form militia regiments that would provide a population base for military settlements in the Waikato once the government had taken control of the area (Allen 1969:33). The settlements were intended to prevent further unrest within the Maori population by establishing a larger European presence in the area and to guard from further attacks from the Kingites living to the south of the Puniu River (Cowan 1955: 412). Many of the soldiers were recruited from the gold fields of Otago and Australia with the main incentive to join up being the provision of a 1 acre town allotment and a larger farm allotment (50 acres in size for the lower ranks and larger ones for the officers) to each soldier after completing three years of military service. Enlistment began in August 1863 with the men being divided into the four Waikato regiments (Allen 1969:35). The land for the settlements was to be confiscated from the Maori by the government and by mid-1864, military settlements were being planned at four locations in the Waikato at Alexandra (later renamed Pirongia), Kihikihi, Hamilton and Cambridge. The sites were chosen as defensive positions and to overlook the Waikato and Waipa Rivers. As the settlements were intended to be self-sufficient, it was also important that the sites chosen contained enough surrounding land suitable for farming. The strategic importance of the sites, in most cases, however, outweighed other factors and in the case of Cambridge, its location was ultimately decided as it guarded the head of navigation on the Waikato River (Allen 1969: 47).

The settlement at Cambridge was established in July 1864 and the site soon became the headquarters of the Third Waikato Regiment. Whilst the soldiers were put to tasks of building facilities, including two redoubts, surveyors were at work laying out the new settlement in 1 acre town allotments and larger farm allotments in the surrounding area. The town allotments were laid out in rectangular grids situated around the two redoubts, one on each side of the Waikato River. The farm allotments were intended to spread out from the edges of the town but were planned to be kept as close to the town as possible for defensive reasons. Unfortunately, the military settlement process at Cambridge did not run particularly smoothly, as noted in the in the 29 November 1864 Edition of the *Daily Southern Cross*:

‘Cambridge is laid out on both sides of the Horotiu River, about 30 miles above Ngaruawahia, and is the headquarters of the third Waikato Regiment. There are about 600 men up here at present. The town is laid out in one-acre allotments, and the surveyors are busy laying out the roads for the fifty-acre allotments, and yet the men of this regiment have not got any of the acre allotments given to them, although the township has been surveyed these last two months. It is not possible, therefore, for anyone to make improvements on his acre. We hear that the men of the 2nd Regiment have some of their land in potatoes and other crops, but there is nothing of the kind here.’

The town lots were eventually provided to the men, but more problems arose with the farm allotments, the main one being an abundance of swamp land. The size of the farm lot granted was dependent on the rank of the soldier, with privates receiving 50 acre lots, corporals 60 acres, sergeants 80 acres, subalterns 200 acres, 250 acres for surgeons, 300 acres for captains and 400 acres for field officers. The farm blocks were laid out in 50m units and the higher-ranking men would choose the appropriate number of blocks to make up their allotment, apart from the 60 and 80 acre farms for corporals and sergeants which

were laid out separately, shown in Figure 3 (Allen 1969:76). Many of the lower ranking men received 50 acres of poor quality swampy land which proved too difficult to manage and many sold their land as soon as their military service was finished, or in some cases they sold the land and transferred the military service to the new owner.

The higher-ranking soldiers fared much better, often receiving better quality land and also being able to combine their 50 acre lots into larger farms. The area to the north of Cambridge on the eastern side of the Waikato River at Hautapu was described as level and unbroken land which was able to be surveyed into 50 acre lots in a rectangular pattern (Allen 1969:81). This area of better quality land was an exception, with the vast majority of the land allotted to the soldiers being inferior, and overall the military settlement scheme at Cambridge was for the most part considered a failure with only a small number of the soldiers and their families remaining on their land (Cambridge Museum Website). The plan in Figure 4 shows the location of the Bardowie Industrial Precinct within the farm allotments granted to the militia men in the 1860s.

Later European Settlement

As noted above, the land to the east and northeast of Cambridge that was surveyed for military farm allotments was swampy and many of the soldier settlers sold their land and left the district. To others, the failure of the military settlement was seen as an opportunity to make a profit and a number of Auckland businessmen took advantage of the situation by buying up military farm allotments and the surrounding land to create large farming estates (Stone 2013). One such enterprise, The Auckland Agricultural Company, was formed by Thomas Russell and James Williamson with financial input from the Mclean brothers Thomas and Every. Just to the northeast of Cambridge the company established a large farm estate, known as Fencourt, covering approximately 35,000 acres (Cambridge Museum Website).

Another farming estate was formed by one man, James Taylor, who established 'Bardowie', comprising over 750 acres. Taylor was born in West Tamaki in 1856 and settled in Cambridge in 1875. He died at Bardowie in 1938. He built the family homestead 'Bardowie' at Hautapu in 1880 and was an avid outdoorsman; many sporting events, such as a hunt and polo matches were held on the estate. He was also the first chairman of the Cambridge Co-operative Dairy in 1901 (*The Waikato Independent* 27 October 1938 edition).

In 1929, Taylor offered up the property to the government under the small farm scheme with Mr Taylor retaining the homestead and 60 acres. The plan proposed creating 51 new sections of 8 to 12.5 acres along Zigzag Road, the west side of Victoria Road with the majority on the eastern side of the railway line. The total land offered was approximately 512 acres (article in *The Waikato Independent*, 19 May 1932).

Bardowie Farm

The land containing the Bardowie Industrial Precinct was part of the property holdings of Mr James Taylor, described above, who purchased Allotments 191, 192, 193, 199 and 202 Parish of Hautapu in the 1880s. Prior to this, those allotments had been granted to soldiers of the Third Waikato Regiment under the government's military settlement scheme. As mentioned previously, the allotments were for the most part marked out in 50 acre units with the higher-ranking men combining lots to make up their total land grant. As can be seen in Figure 4, F. George was one such person, who received six 50 acre allotments (193

to 198). Major Frederick Nelson George enlisted in the Third Waikato Regiment in 1863. His grant consisted of 200 acres based on his rank as a major, and an additional 100 acres as a field officer (Cambridge Museum Website). Although most of his property lay to the south of the Bardowie Industrial Precinct, part of Allot 193 is within it. George sold Allot 193 in 1869 to a C. Taylor. The property was mortgaged a number of times from 1870 to 1872 until it was bought by William James Taylor in 1879, who transferred it to James Taylor in 1888 (see Table 1).

The two allotments to the north of Frederick George's land were Allotments 192 and 199 (also shown in Figure 4), with the former granted to George Lamb in 1867 and the latter to R.J. Lamb in 1866. These two allotments have some shared history with transactions occurring between the two Lambs in May 1878, just before they were bought by Thomas Russell and James Williamson in 1878 and then transferred to the Auckland Agricultural Company in 1883 (see Table 2 and Table 3). The plan from 1883 in Figure 5 shows the surveyed allotments for the transfer.

The two remaining lots 191 and 202 were also granted to soldiers of the third Waikato Militia, Charles Walker Laird and Joseph Molloy, respectively. Laird sold his land within four months of being granted it to a Mr McLennan, in December 1867. Mr McLennan also purchased Allotment 202 in 1870. Both of the allotments were purchased by James Taylor in 1886 (see Table 4 and Table 5).

As can be seen in the information above, much of the land in the area including the Bardowie Industrial Precinct was acquired by James Taylor during the 1880s and onwards. As noted above, James Taylor named his farm 'Bardowie' and it remained in his ownership until 1929, when he transferred most of it to the government for use in setting up small farms. It is interesting to note that Allotments 191 and 202 were both transferred to Wilfred Rudolph Laurent in 1929 (whose family name was used for the naming of Laurent Road). This transfer also included two small allotments, 347 and 348. These are located along Laurent and Victoria Roads and probably represented road reserve areas. The plan in Figure 6 from 1934/35 shows the plans of Allotments 192, 193, 194 and 199, presumably associated with the land transfer from James Taylor to the government under the small farms scheme.

The subdivision of the area containing the Shoof land, which occurred much more recently, can also be seen on the plan in Figure 7 dating from 1976, located within Allotments 191 and 192. The plan from 1982 in Figure 8 shows further subdivision of the Shoof land and a more recent plan from 1998 (Figure 9) shows the Shoof land as it remains today.

Aerial photographs were also reviewed and, as can be seen in the aerial photograph from 1953 in Figure 10, the Bardowie Industrial Precinct was for the most part farmland with at least one house and farm buildings in various parts of the property.

Table 1. Early Land Ownership Information for Allotment 193 Parish of Hautapu

Instrument	Parties	When Recorded	Where Recorded
Crown Grant (300 acres)	F.N. George	3 August 1866	Deeds Index 1F/28, Archives NZ
Conveyance	George to C. Taylor	23 October 1869	Deeds Index 1F/28, Archives NZ
Conveyance	Taylor to Wilson	21 January 1870	Deeds Index 1F/28, Archives NZ
Mortgage	Wilson to NZ Loan & Co.	25 January 1870	Deeds Index 1F/28, Archives NZ
Reconveyance	NZ Loan &c, Co. to Wilson	22 March 1870	Deeds Index 1F/28, Archives NZ
Conveyance (Allot 193)	Wilson to Baillie	22 March 1870	Deeds Index 1F/28, Archives NZ
Mortgage	Baillie to NZ Loan & Co	19 July 1870	Deeds Index 1F/28, Archives NZ
Mortgage	Baillie to T & S Morrin	11 October 1870	Deeds Index 1F/28, Archives NZ
Mortgage	Baillie to Forrest	15 February 1871	Deeds Index 1F/28, Archives NZ
Conveyance	Baillie to Binney	22 March 1871	Deeds Index 1F/28, Archives NZ
Conveyance ER	Baillie & Binney to Taylor	15 April 1871	Deeds Index 1F/28, Archives NZ
Reconveyance	T & S Morrin to Taylor	17 April 1871	Deeds Index 1F/28, Archives NZ
Reconveyance	Forrest to Taylor	17 April 1871	Deeds Index 1F/28, Archives NZ
Reconveyance	NZ Loan & Co to Taylor	16 August 1872	Deeds Index 1F/28, Archives NZ
Brought under the Land Transfer Act	William James Taylor	12 August 1879	SA17/154, LINZ
Transfer	W.J. Taylor to James Taylor	12 June 1888	SA17/154, LINZ
Certificate of Title issued (Pt Allots 193, & several other parcels, Parish of Hautapu	James Taylor	31 July 1934	SA655/196, LINZ

Table 2. Early Land Ownership Information for Allotment 192 Parish of Hautapu

Instrument	Parties	When Recorded	Where Recorded
Crown Grant (50 acres)	G. Lamb	27 April 1867	Deeds Index 1F/325, Archives NZ
Mortgage	Lamb to Petingale	20 December 1867	Deeds Index 1F/325, Archives NZ
Transfer	Petingale to Hughes	22 February 1869	Deeds Index 1F/325, Archives NZ
Reconveyance	Hughes to Lamb	16 March 1874	Deeds Index 1F/325, Archives NZ
Mortgage	Lamb to Burrows	16 March 1874	Deeds Index 1F/325, Archives NZ
Reconveyance	Burrows to Lamb	24 November 1876	Deeds Index 1F/325, Archives NZ
Mortgage	Lamb to Ball	25 November 1876	Deeds Index 1F/325, Archives NZ
Conveyance ER	Lamb to R Lamb	2 May 1878	Deeds Index 1F/325, Archives NZ
Annuity	Lamb to George Lamb	2 May 1878	Deeds Index 1F/325, Archives NZ
Brought under the Land Transfer Act	Thomas Russell & James Williamson	26 August 1878	SA15/106, LINZ
Transfer (Allots 192 & 199, Parish of Hautapu)	Russell & Williamson to The Auckland Agricultural Co. Ltd	19 July 1881	SA15/106, LINZ
Certificate of Title issued (Allots 192 & 199, Parish of Hautapu)	William James Taylor	5 June 1883	SA31/250, LINZ
Transfer	W.J. Taylor to James Taylor	19 October 1886	SA31/250, LINZ
Certificate of Title issued (Allots 192, 199 & several other parcels, Parish of Hautapu)	James Taylor	31 July 1934	SA655/196, LINZ

Table 3. Early Land Ownership Information for Allotment 199 Parish of Hautapu

Instrument	Parties	When Recorded	Where Recorded
Crown Grant (50 acres)	R.J. Lamb	13 October 1866	Deeds Index 1F/323, Archives NZ
Mortgage	Lamb to Burrows	16 March 1874	Deeds Index 1F/323, Archives NZ
Reconveyance	Burrows to Lamb	24 November 1876	Deeds Index 1F/323, Archives NZ
Mortgage	Lamb to Ball	25 November 1876	Deeds Index 1F/323, Archives NZ
Annuity	Lamb to George Lamb	2 May 1878	Deeds Index 1F/323, Archives NZ
Brought under the Land Transfer Act	Thomas Russel and James Williamson	26 August 1878	SA15/106, LINZ
Transfer (Allots 192 & 199, Parish of Hautapu)	Russell & Williamson to The Auckland Agricultural Co. Ltd	19 July 1881	SA15/106, LINZ
Certificate of Title issued (Allots 192 & 199, Parish of Hautapu)	William James Taylor	5 June 1883	SA31/250, LINZ

Table 4. Early Land Ownership Information for Allotment 191 Parish of Hautapu

Instrument	Parties	When Recorded	Where Recorded
Crown Grant (50 acres)	C.W. Laird	16 August 1867	Deeds Index 1F/253, Archives NZ
Conveyance	Laird to McClennan	31 December 1867	Deeds Index 1F/253, Archives NZ
Mortgage	McClennan to Buckland	5 February 1885	Deeds Index 1F/253, Archives NZ
Release	Wylie to McClennan	10 March 1885	Deeds Index 1F/253, Archives NZ
Mortgage	McClennan to Wylie	16 July 1885	Deeds Index 1F/253, Archives NZ
Brought under the Land Transfer Act	James Edward McClennan	29 September 1885	SA40/309, LINZ
Memorandum of Transfer, Certificate of Title issued (Allots 191 & 202, Parish of Hautapu)	Henry Buckland to James Taylor	1 April 1886	SA43/117, LINZ
Transfer	Taylor to Wilfred Rudolph Laurent	24 October 1929	SA43/117, LINZ
Certificate of Title issued (Allots 191 & 202, 347 & Pt 348, Parish of Hautapu)	W.R. Laurent	24 October 1929	SA601/202, LINZ

Table 5. Early Land Ownership Information for Allotment 202 Parish of Hautapu

Instrument	Parties	When Recorded	Where Recorded
Crown Grant (50 acres)	J. Molloy	2 October 1867	Deeds Index 1F/669, Archives NZ
Conveyance	Molloy to Jackson & R	8 October 1868	Deeds Index 1F/669, Archives NZ
Conveyance	Jackson & R to McClennan	16 June 1870	Deeds Index 1F/669, Archives NZ
Mortgage	McClennan & ors to Buckland	5 February 1885	Deeds Index 1F/669, Archives NZ
Mortgage	McClennan to Wylie	16 July 1885	Deeds Index 1F/669, Archives NZ
Brought under the Land Transfer Act	James Edward McClennan	29 September 1885	SA40/309, LINZ
			For more see above



Figure 3. Plan of the militia farm allotments around Cambridge with the Bardowie Industrial Precinct outlined in red (source: Allen 1969)



Figure 4. HNC SO 97 I 3 Plan of the military settlement at Cambridge dated to the 1860s showing the Bardowie Industrial Precinct outlined in red with details of the grantees (C.W. Laird - Allot 191; G. Lamb - Allot 192; F.N. George – Allot 193; and J. Molloy – Allot 202) shown in lower inset (source: QuickMap)

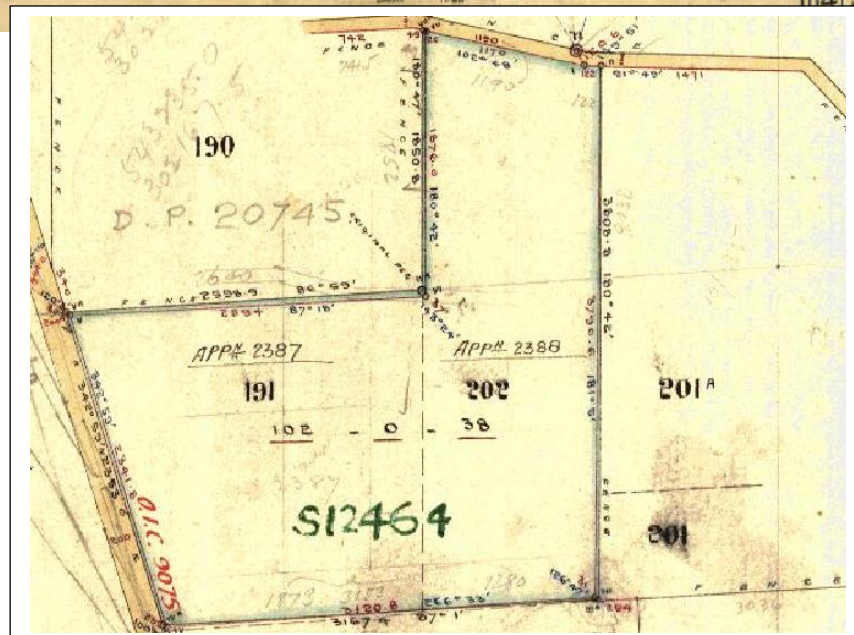
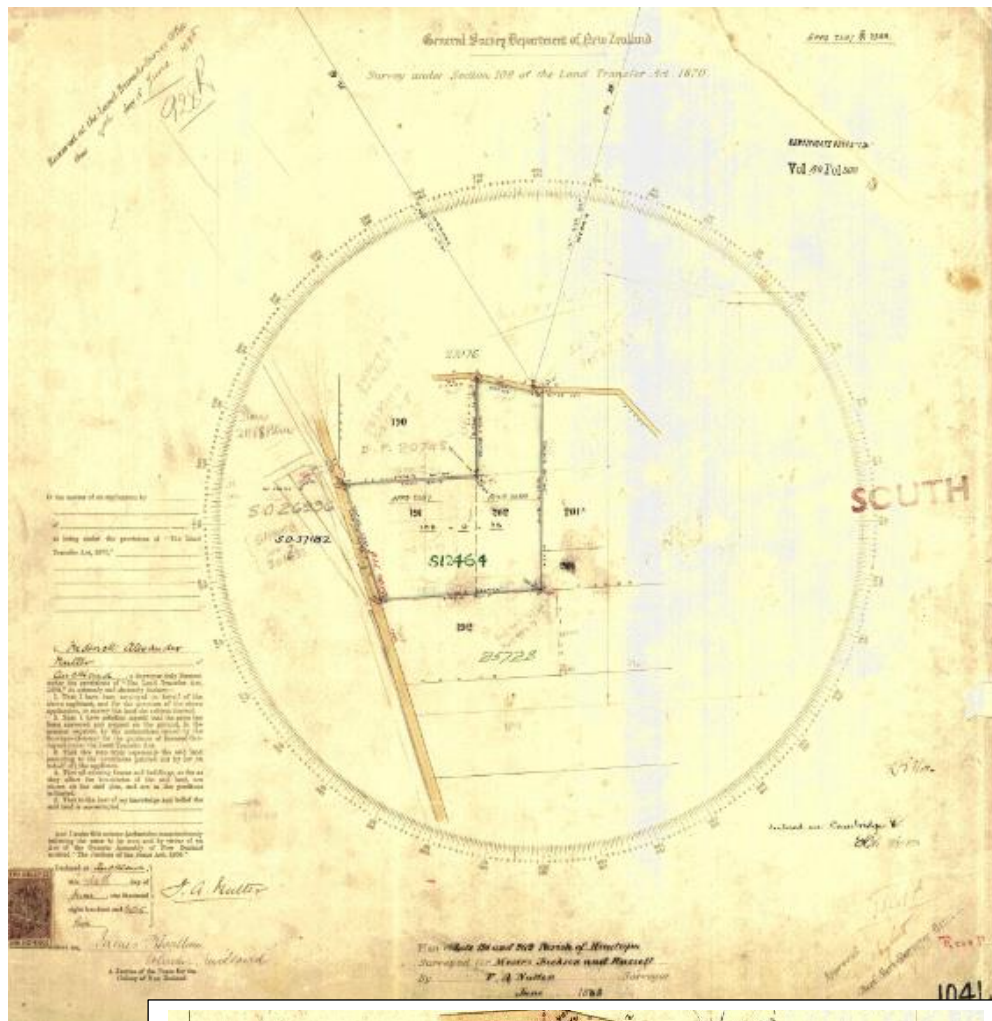


Figure 5. HNC LT 1041 A I 1 plan which states it was received in the Land Transfer Office in 1883, showing the survey of Allots 199 and 202 for Messrs Jackson and Russell with detail in lower inset (source: Quickmap)

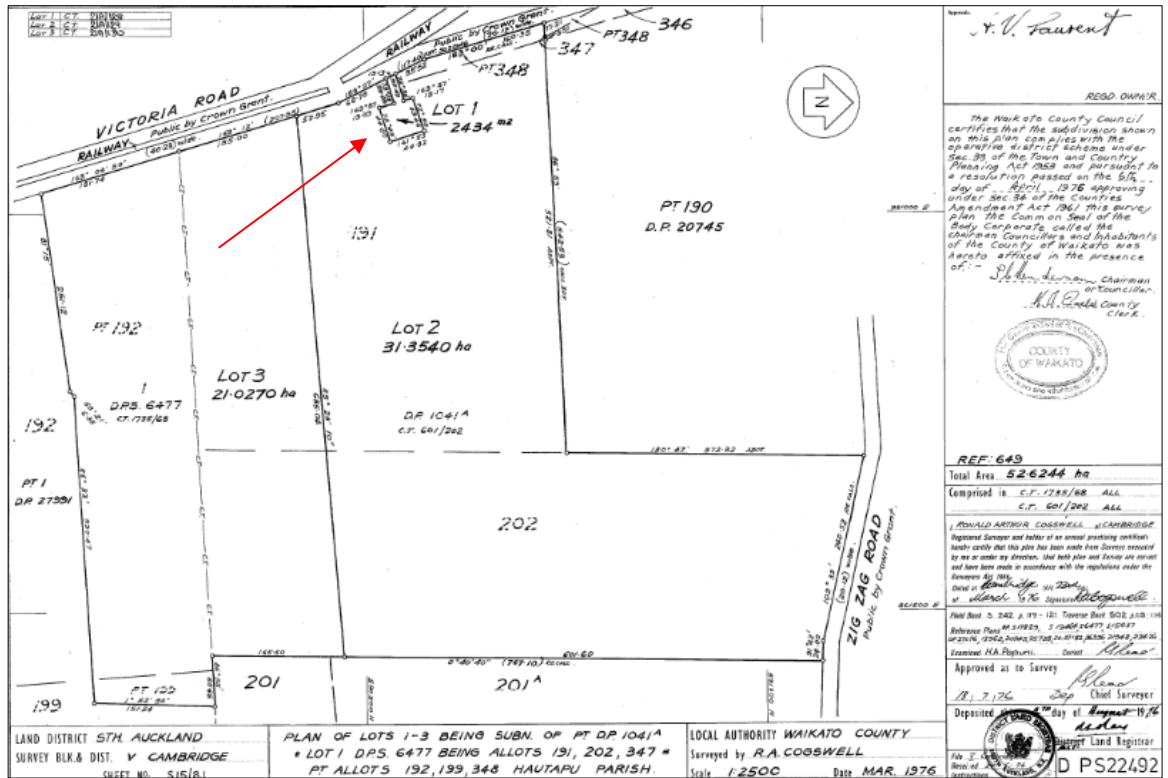


Figure 7. HN DPS 22492 dated 1976, showing a small lot indicated by red arrow within the current Shoof land (source: Quickmap)

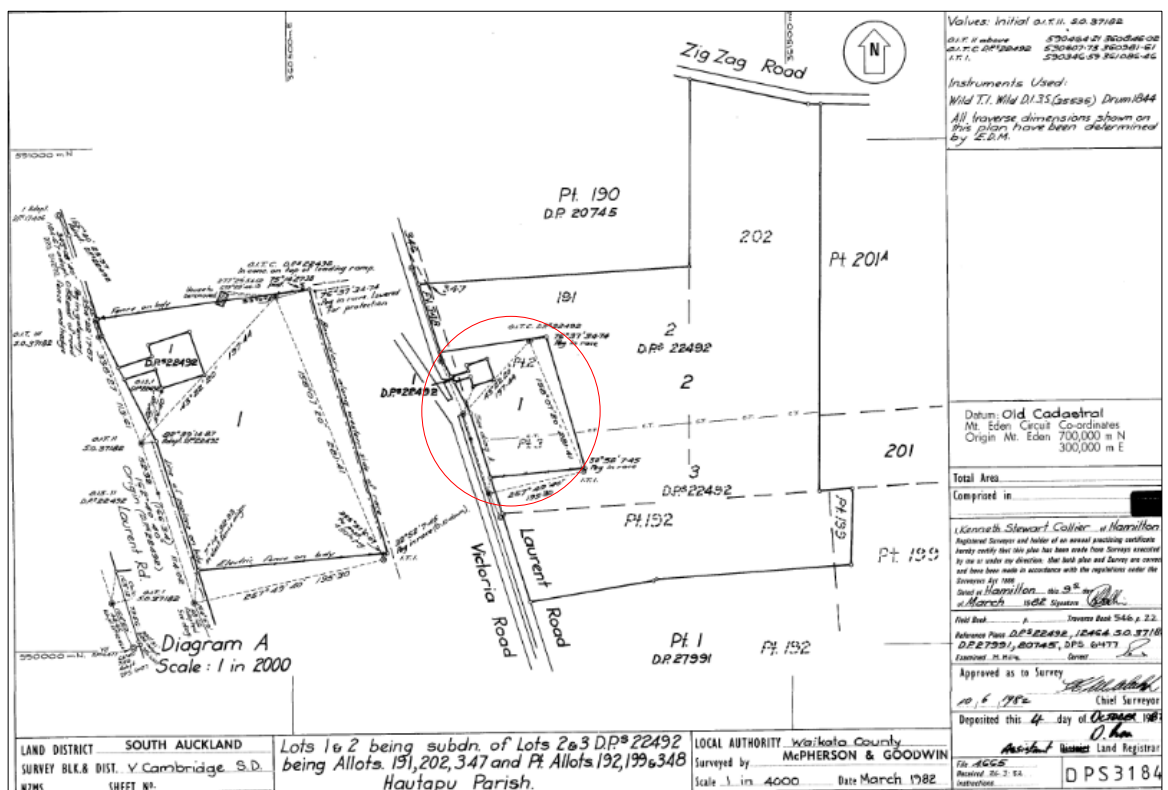


Figure 8. HN DPS 31840 S1 from 1982, showing subdivision of the current Shoof land (circled) with smaller Lot 1 (seen in the 1976 subdivision) plan within its boundaries (source: Quickmap)

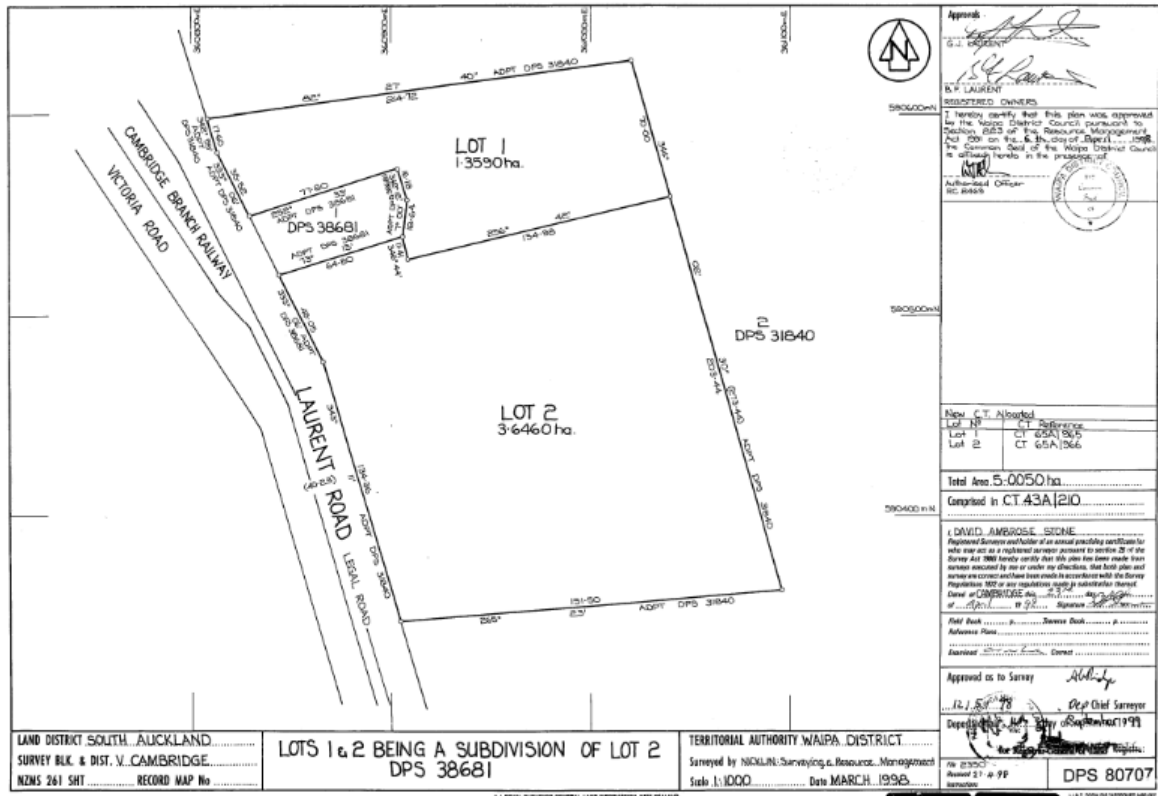


Figure 9. HN DPS 80707 T 1 dated 1998, showing the current lots in the Shoof land (source: Quickmap)

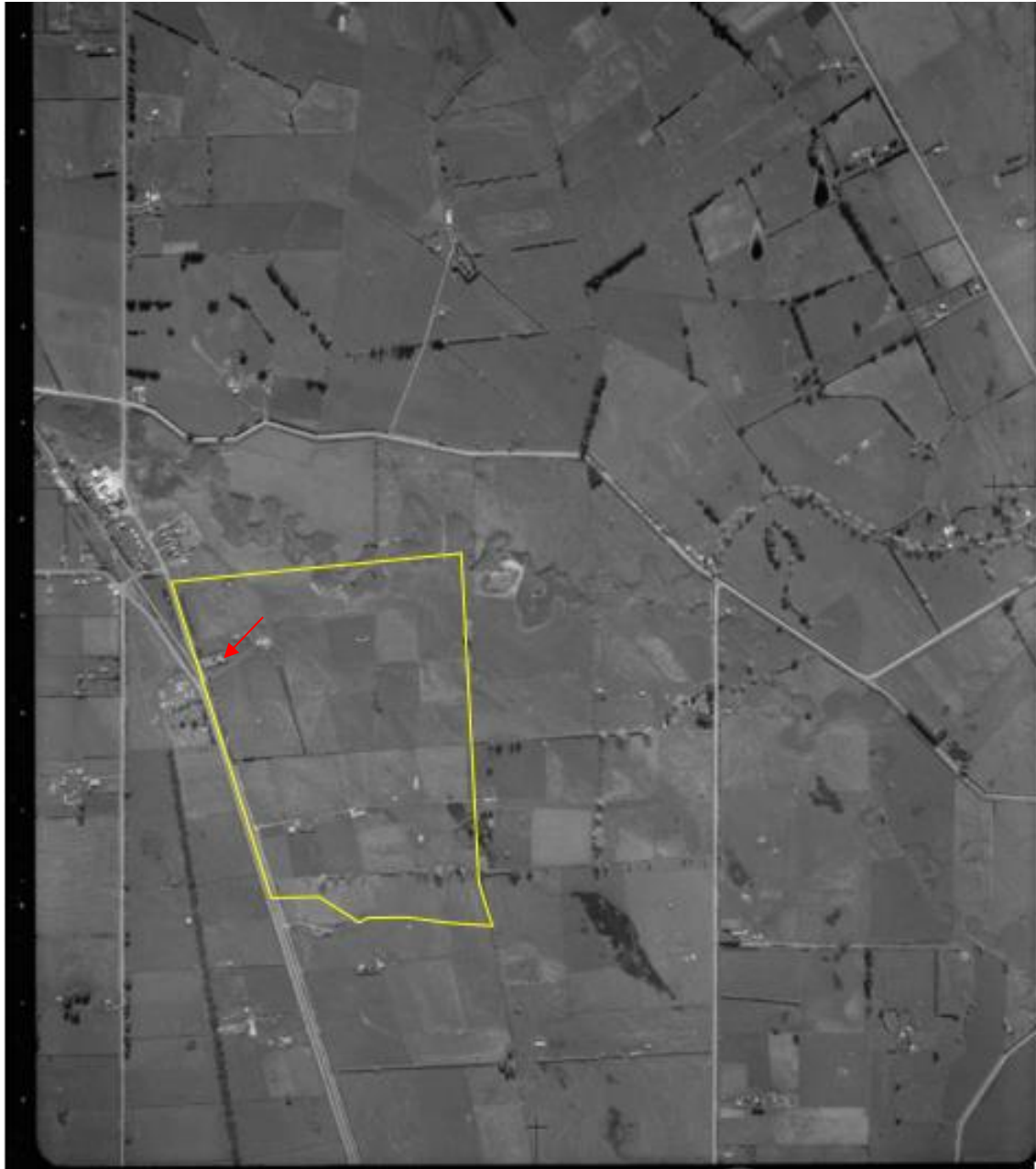


Figure 10. Aerial photograph dated 1953 (Crown SN 819 2171 36) with the Bardowie Industrial Precinct outlined in yellow, showing the presence of what appears to be a house (red arrow) and farm paddocks and structures (sourced from <http://retrolens.nz> and licensed by LINZ CC-BY 3.0)

ARCHAEOLOGICAL BACKGROUND

Recorded Archaeological Sites

The distribution of archaeological sites recorded within and around the Bardowie Industrial Precinct is shown in Figure 11 and summary details are provided in Table 6.

Three archaeological sites have been previously recorded within the Bardowie Industrial Precinct: S15/474, S15/475 and S15/476. All of the sites consist of borrow pits that were identified from historic aerial photographs; none of the sites have been inspected in the field. S15/474 is reported to consist of three borrow pits in an area of 120m x 20m identified on 1943 aerial photograph (SN266/834/62). Borrow pits are associated with Maori horticulture. The pits, which can cover several metres in area and are usually between 1m and 1.5m in depth, were dug to collect sands and gravels that were present below the upper soil layers. The extracted material was then added to the topsoil to create a ‘made soil’ for gardening. The purpose of this ‘made soil’ was to improve soil quality (drainage, friability) for the cultivation of plants brought to New Zealand from warmer climates by Maori.

Eight borrow pits covering an area of 180m x 70m were identified at S15/475 on the 1943 aerial photograph (SN266/834/63). The third site (S15/476) had four borrow pits identified in an area covering 90m x 20m from the same aerial photograph as S15/475. The NZAA site records are appended to this report for reference. There are also a number of archaeological sites in the general vicinity, most of which are associated with Maori gardening activities.

Previous Archaeological Investigations

The archaeological sites within the Bardowie Industrial Precinct have not been previously surveyed or investigated. However, a number of similar sites, located in the vicinity have been investigated and details on the findings are provided below to provide a background on the range of archaeological features that could be present within the Bardowie Industrial Precinct. Three of these sites S15/421, S15/422 and S15/427 were investigated in advance of the construction of a housing development (Gumbley 2018). All of the sites were associated with Maori gardening activities and included borrow pits, gardening (made) soils and associated features such as post holes and fire scoops, fireplaces and charcoal patches (*ibid.*). Details of the results are summarised below:

Site S15/421 contained 58 recorded features, including three borrow pits and an area of gardening soil. The other features included postholes (8), fireplaces (3) and a scoop, with the majority of the features being charcoal patches (36). The latter are believed to be associated with forest clearance. The gardening soil (a sandy/gravelly Tamahere Loam) was situated over Horotiu silt loam parent material. Upon detailed investigation, a pock-marked surface in the Horotiu soil was interpreted as being formed by tools used during the cultivation of the gardens (Gumbley 2018: 24-26). Site S15/422 contained four borrow pits and Tamahere Loam (gardening soil) in the area around the borrow pits. The investigation also identified two fireplaces, two postholes, and charcoal concentrations, the latter again being the most abundant feature type recorded. The soils also showed evidence of what was interpreted as gardening tool use similar to that seen at S15/421 (Gumbley 2018: 32-36). Site S15/427 was found to contain two borrow pits (there had originally been three, but one had been destroyed by past development). Associated gardening soils were also identified. Only one of the remaining pits was able to be examined in detail as the other was not within the survey area for the project. It measured 20m in diameter and was

1m deep. The investigation also identified a large number of European features, mainly post holes (117 out of 125) associated with a house and piggery that were formerly located within the site boundary. These later activities were found to have damaged or destroyed most evidence of any earlier Maori gardening activities (Gumbley 2018: 45-51).

Another site also located just to the south of the Bardowie Industrial Precinct (S15/754) was found to contain a heavily modified borrow pit identified during the installation of a gas main. It was investigated as part of the Waikato Expressway project and was found to contain two borrow pits and a Maori gardening soils. However, the site also contained a historic house (c. early 20th century) and the pits and made soil had been affected by activities associated with the house, including dumping of rubbish into the pits. Three other nearby sites were also investigated as part of the Waikato Expressway project: S15/478, S15/479 and S15/480. The former two were surveyed, but no evidence of archaeological features or deposits was found. As S15/479 lay outside of the designation, no further investigation was carried out. Topsoil stripping at the location of S15/478 did not reveal any archaeological features and it was concluded that the possible features recorded at the site did not represent borrow pits (Campbell et al. 2016:78). Site S15/480 was first identified in 1993 and further investigated in 2014. Two borrow pits were identified along with 19 other features including gardening soils, bin pits and fire scoops. Much of the site had been damaged by activities associated with a kiwi fruit orchard (Campbell and Hudson 2014:82). Further to the east site S15/324 was also investigated and found to contain seven borrow pits, a cooking area indicated by 20 fire scoops and a storage area with 11 pits and several small structures indicated by the presence of post holes (Campbell and Hudson 2012 :37-38). In addition, obsidian flakes were also recovered (ibid.: 59).

Archaeological Landscape

The Bardowie Industrial Precinct is situated within the Waikato Basin, an area of extensive Maori gardening complexes and settlement. It is also distinguished by the fact that the soils for the garden sites were modified by Maori and the association between soil types and archaeological sites has been studied in detail.¹ These made soils are classified as Tamahere and they, along with other associated archaeological sites (including pa sites), make up the archaeological landscape of the area. Previous research and investigations have revealed past Maori occupation with both pa sites and sites associated with gardening predominating and with many of these sites clustered around the Waikato River. This clustering would appear to be the result of location preference, but also influenced by the focus of past archaeological surveys and investigations (Campbell 2012: 18-20). One area where this pattern does not seem to hold true is in the vicinity of the Bardowie Industrial Precinct, where horticultural sites have been identified up to 4km from the Waikato River (Gumbley 2018:11). The reason for this distribution has not been established, although it has been suggested that the distribution pattern could have been caused by either a long-term increase in population over time or a short-lived period of very high population (ibid.).

As noted by Campbell, there is also currently not enough available data to reconstruct the temporal progression of occupation in the wider Waikato Basin and the date of the first occupation has not been established (Campbell 2012:57). The earliest radiocarbon dates would suggest a date from the mid-15th century (Campbell and Hudson 2013:64). The activities associated with early occupation are thought to have been forest clearance in

¹ A detailed background of research on gardening soils is provided in (Campbell 2012: 5-8)

desirable gardening areas, as evidence has indicated that the gardens were established in areas formerly covered by primary forest, which became fern land after the gardens were abandoned (Campbell 2012:58; Gumbley 2018:59).

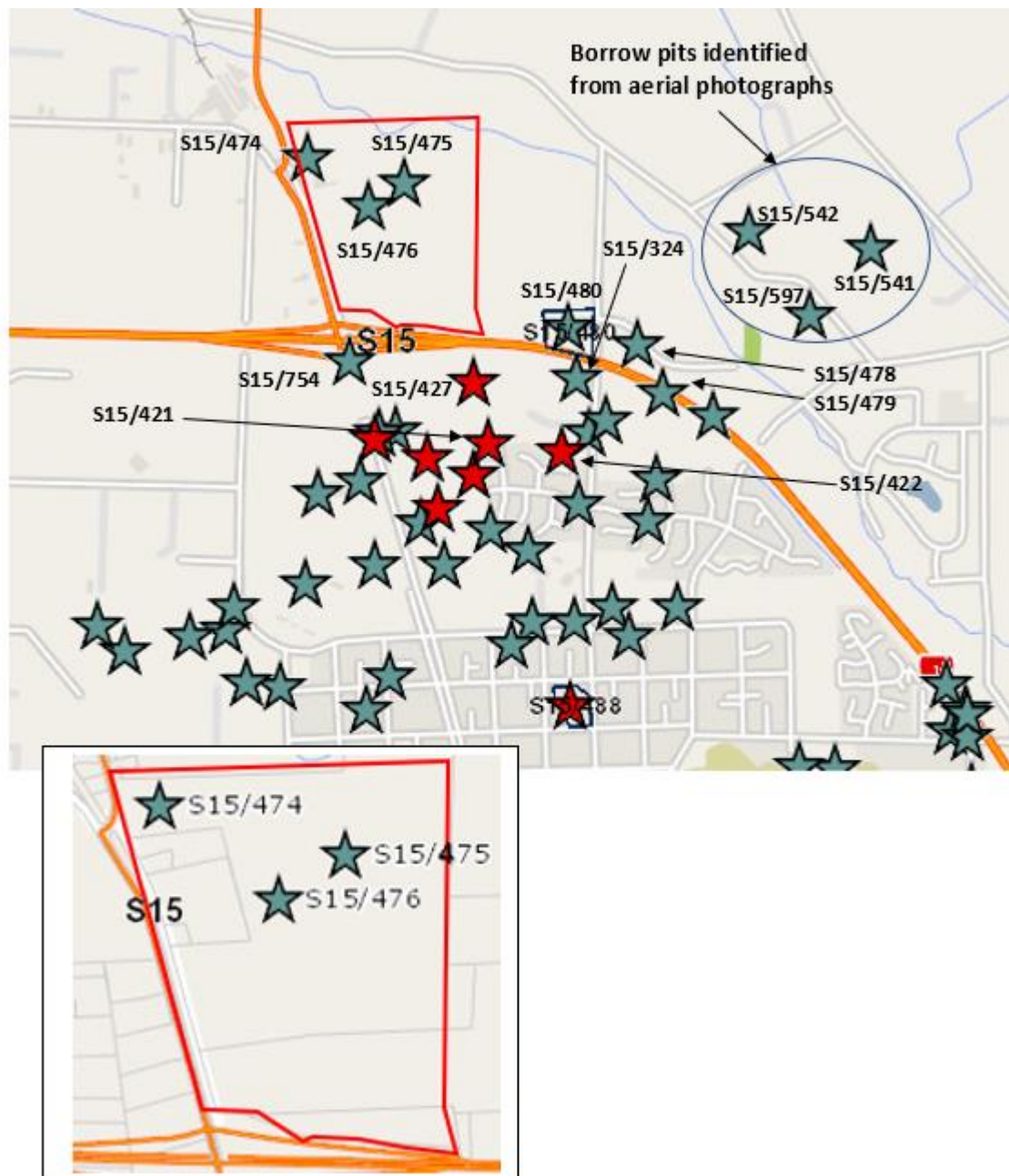


Figure 11. Map showing the distribution of recorded archaeological sites within and in the vicinity of the Bardowie Industrial Precinct (outlined in red), with sites discussed in this report indicated (source: NZAA Archsite)

Table 6. Brief description of the archaeological sites within the Bardowie Industrial Precinct (shaded grey) and other sites in the general vicinity that are referred to in this report

NZAA #	Site Type	Description	NZTM Easting	NZTM Northing
S15/324	Maori Horticulture	Investigated site with borrow pits and gardening soil (Tamahere). Ovens and obsidian artefacts were present.	1817310	5805745
S15/421	Maori Horticulture	Investigated site with a single borrow pit and associated gardening soil (Tamahere) covering c.2ha. Site has been destroyed	1817243	5805406
S15/422	Maori Horticulture	Investigated site with four borrow pits and associated gardening soil (Tamahere).	1816913	5805451
S15/427	Maori Horticulture	Two borrow pits and associated garden soil, damaged and partially destroyed.	1816839	5805726
S15/474	Maori Horticulture	Three borrow pits in an area of 120m x 20m. Identified from 1943 aerial (SN266/834/62). Site has not been previously visited.	1816087	5806748
S15/475	Maori Horticulture	Eight borrow pits in an area of 180m x 70m. Identified from 1943 aerial (SN266/834/63). Site has not been previously visited.	1816527	5806634
S15/476	Maori Horticulture	Four borrow pits in an area of 90m x 20m. Identified from 1943 aerial (SN266/834/63). Site has not been previously visited.	1816367	5806530
S15/478	Maori Horticulture	Seven borrow pits in an area of 180m x 110m. identified from 1943 aerial (SN266/834/64). Survey did not reveal an archaeological site.	1817588	5805901
S15/479	Maori Horticulture	Four borrow pits in an area of 90m x 60m. Identified from 1943 aerial (SN266/834/64). Not visited.	1817702	5805676
S15/480	Maori Horticulture	Investigated site with three borrow pits and associated pits and fire scoops.	1817296	5805970
S15/541	Maori Horticulture	Six borrow pits identified in an area covering 160m x 100m. Identified from 1943 aerial photograph only. Current status unknown.	1818648	5806339
S15/542	Maori Horticulture	Four borrow pits identified in an area covering 120m x 50m. Identified from 1943 aerial photograph only. Current status unknown.	1818096	5806415
S15/597	Maori Horticulture	Single borrow pit. Identified from 1943 aerial photograph and current status unknown.	1818366	5806031
S15/754	Maori Horticulture	Investigated site with one borrow pit, heavily damaged.	1816277	5805819

PHYSICAL ENVIRONMENT

Topography, Vegetation and Land Use History

The Bardowie Industrial Precinct is situated on a flat expanse of land at c.65-66m asl (Figure 12) and the bulk of the area (apart from the ‘Shoof’ land, which contains structures and has been modified by landscaping) is currently operated as a dairy farm. This land was granted to soldiers of the Third Waikato Regiment in the 1860s and it is likely that farming activities occurred from this time onward. The 1935 plan in Figure 6 describes the area as ‘Flat Land in Grass’. No indications of pre-1900 structures were found on the plans examined, but the presence of fences, noted as early as 1883 (Figure 5) indicate that the land was likely being used for agricultural purposes at this point.

More recently, during the 1990s, irrigation systems were installed on the farm as part of the waste management strategy for dairy effluent. A lattice irrigation system has been installed that consists of digging trenches for underground installation of a pipe network. The depth of the trenches can be up to 60cm and the pipelines are generally spaced 17-20m apart.

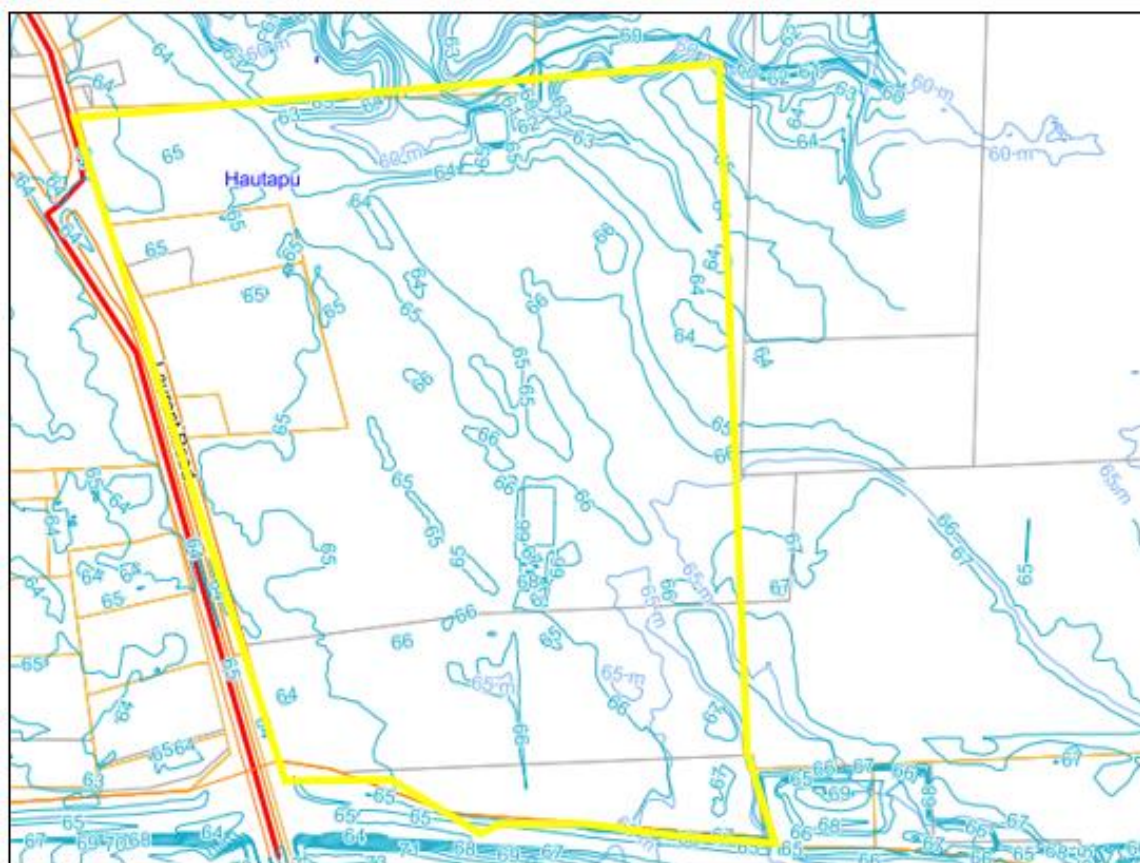


Figure 12. Map with contours showing the elevations in the Bardowie Industrial Precinct (outlined in yellow) (source: Waipa District Intramaps)

Geology and Geomorphology

The geology of the Waipa region consists predominantly of volcanic material, including tephra. The geology of the region has been impacted by volcanic events, such as eruptions coming from the Taupo region, depositing large volumes of alluvial material (Waipa District Council 2008). Volcanic features can be found across the Waipa region, an example being Pirongia Mountain, a basaltic-andesite volcanic cone. Along with volcanic events, the region has been shaped by flooding events from the Waikato and Waipa rivers, carving out channels that can be found near the rivers.

The Bardowie Industrial Precinct is situated on volcanogenic alluvium consisting of silt, sand and gravel (the Hinuera Formation) deposited by the ancient migrations of the ancient Waipa and Waikato River systems over the past c.100,000 years, with deposits up to 60m thick (Figure 13). These ancient alluvial deposits swept around an even older pre-existing hilly landscape, partially burying it and creating a mostly flat alluvial surface with only remnants of the older hills protruding in places (Lowe 2010). The last depositional episode was between 22,00 and 17,00 years ago and the deposits above the surface consist of numerous thin tephra layers (ibid.).

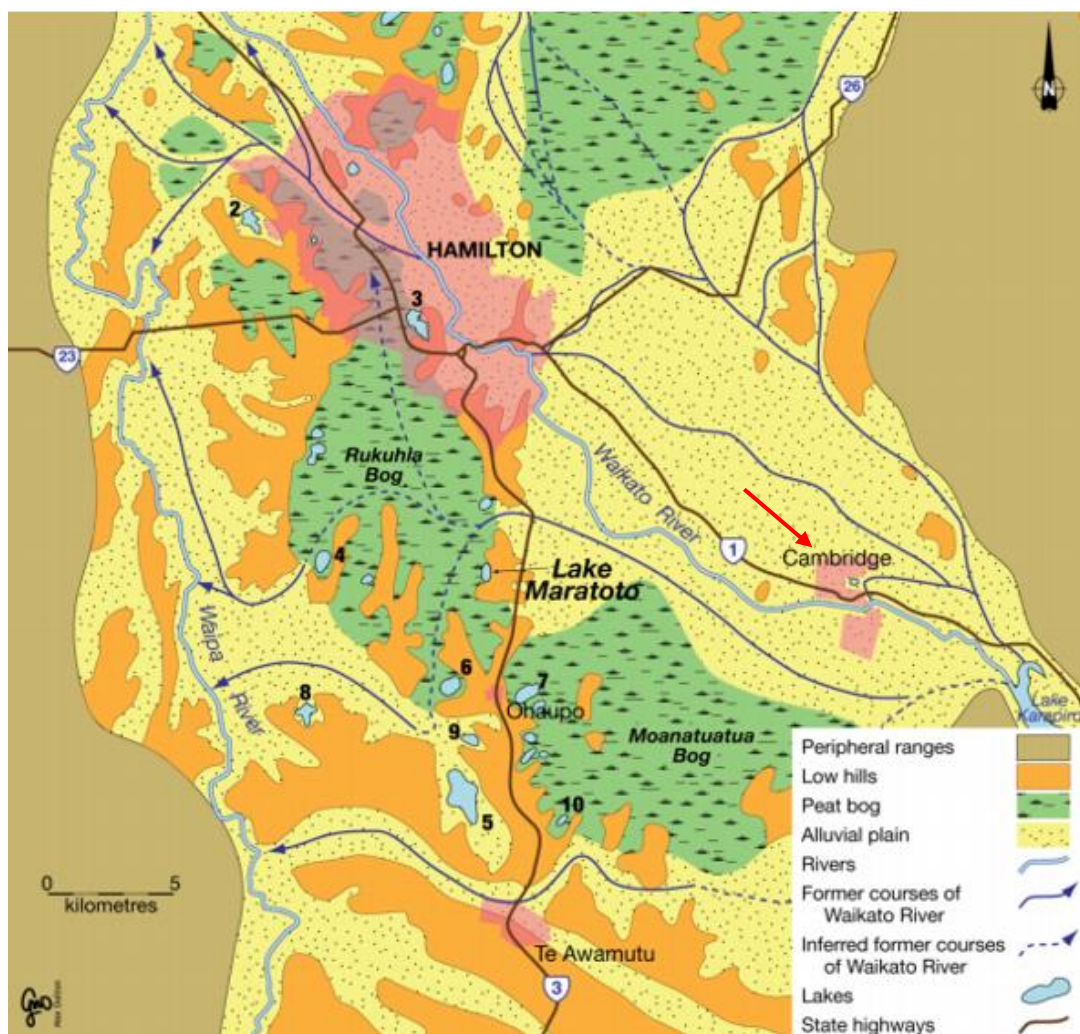


Figure 13. Map showing the modern landscape features in the central and southern part of the Hamilton Basin with approximate location of the Bardowie Industrial Precinct shown by red arrow (source: Lowe 2010 after McCraw 2002)

Soils

As mentioned in the archaeological background section, the association between soil types and the occurrence of archaeological sites associated with Maori gardening has been explored in some detail previously with the majority of archaeological sites occurring on Horotiu soil. As can be seen on the soil map in Figure 14, the ‘borrow pit’ archaeological sites within the Bardowie Industrial Precinct are situated on this soil type. As also mentioned in the archaeological background section, borrow pits in the Waikato basin are often accompanied by a ‘made’ gardening soil (Tamahere). Old soil maps indicated that Tamahere soil was present at Bardowie Farm (Figure 15). However, a recent soil study undertaken at Bardowie farm did not observe the presence of Tamahere soil (Singleton 2016:9). The soil types found during the 2016 study are shown in Figure 14 with the predominant soil type being Horotiu silt loam, a well-drained allophanic soil. The soil previously classified as Tamahere is now identified as a gravelly Horotiu soil, which is described as being similar to the Horotiu silt loam, but with a few gravels present in the upper subsoil (Singleton 2016:9). There are also areas of Te Kowhai silt loam (a gley soil that is poorly drained) and Bruntwood, similar to Horotiu, but with restrictions to drainage in the lower subsoil, making it only moderately well drained. Bruntwood soils often occur in depressions within Horotiu soils or on gentle slopes that form the boundary between Horotiu and Te Kowhai soils (PDP 2018: 10). Finally, a small section in the north of the Bardowie Industrial Precinct lies within a gully complex of Kirikiriroa steepeland soils consisting of steep-sided slopes formed from eroded pumiceous sand and gravel (Singleton 2016:7).

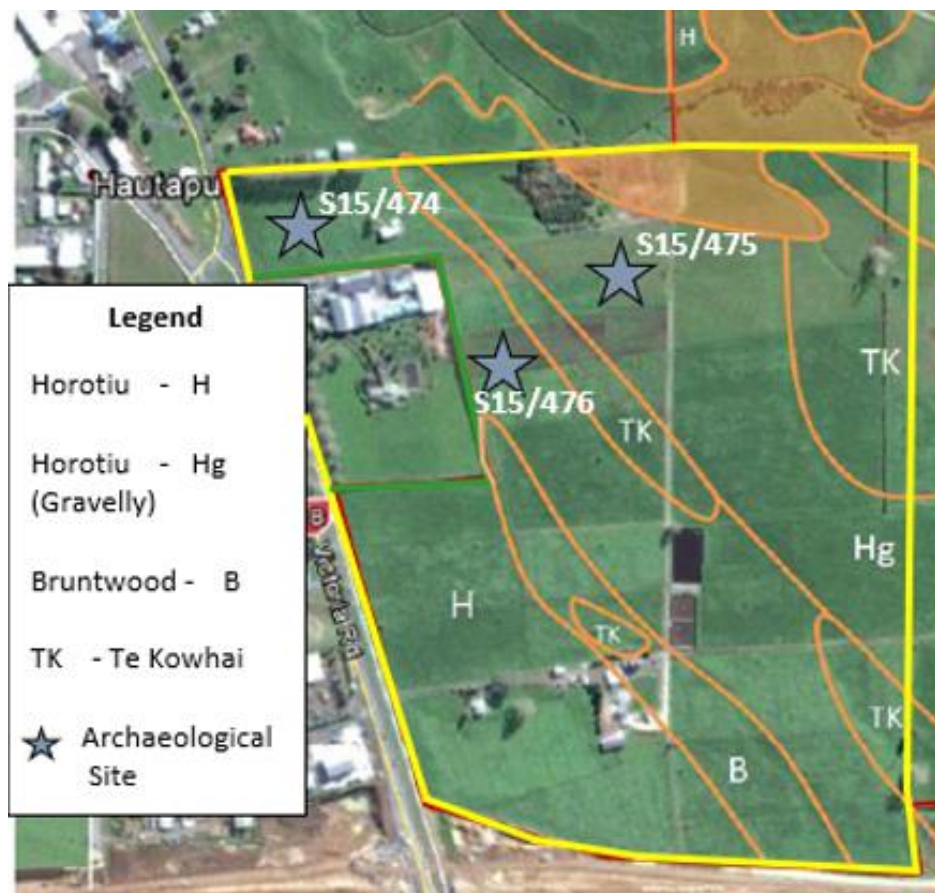


Figure 14. Plan showing the soil types on Bardowie Farm with orange shaded area in the north representing a gully complex and locations of archaeological sites (source: PDP 2018)

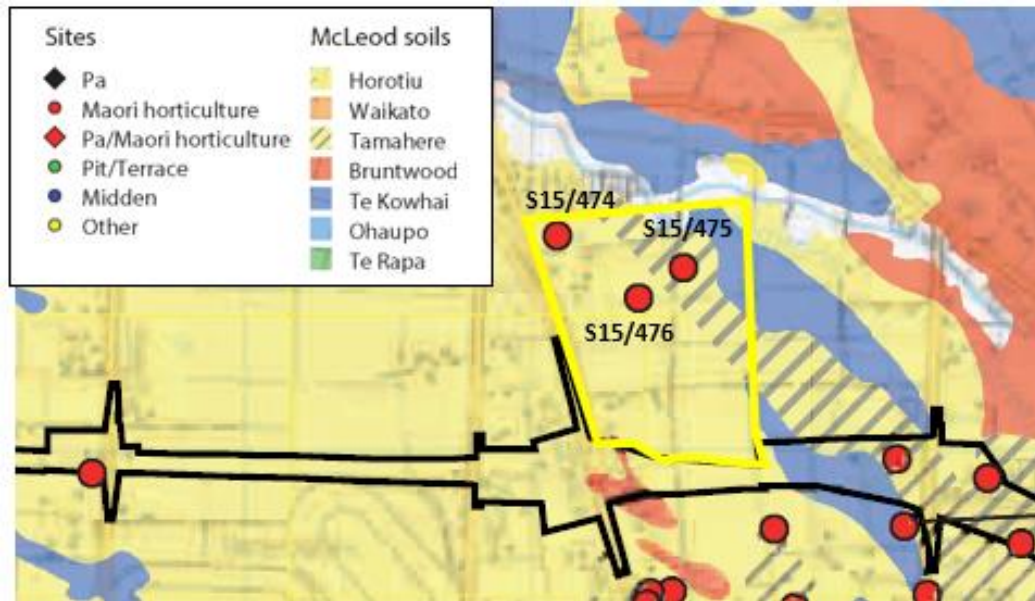


Figure 15. Plan showing the Bardowie Industrial Precinct (outlined in yellow) with soil types and archaeological sites indicated (the black outline is the Designation of the Waikato Expressway) (source: Campbell and Hudson 2013 after McLeod 1984)

FIELD ASSESSMENT

Field Survey Results

The survey was carried out by Bernie Larsen on 25 June 2018 during heavy showers. The paddocks were in active pasture with stock in some areas. Stock trample had churned up a third of the paddocks and in the remaining two-thirds the grass was grown for feed up to 200mm in height. These factors caused some difficulty in ground visibility. Five test pits were excavated to obtain information on the geology of the area and to test for archaeological material.

The survey area is generally flat with some gentle undulating pasture divided into rectangular paddocks by post and wire fences (Figure 16). A small number of mature exotic trees are scattered through the paddocks. The northern area has a natural drainage channel running southeast-northwest into a low-lying area that is in regenerated scrub. Farm tracks run east-west through the north and south of the area, and north-south through the middle. A Fonterra compound including a residence and farming-related structure and machinery occupies a substantial portion of the south-central part of the Bardowie Industrial Precinct, accessed at the southern end of Laurent Road. The area currently occupied by Shoof Inc. is different to the majority of Bardowie Farm. Large office and factory buildings are located in the north, and the southern section is more landscaped with a residence and surrounding gardens and tennis courts. A tall tree hedge surrounds the southern and western boundaries of the Shoof land.

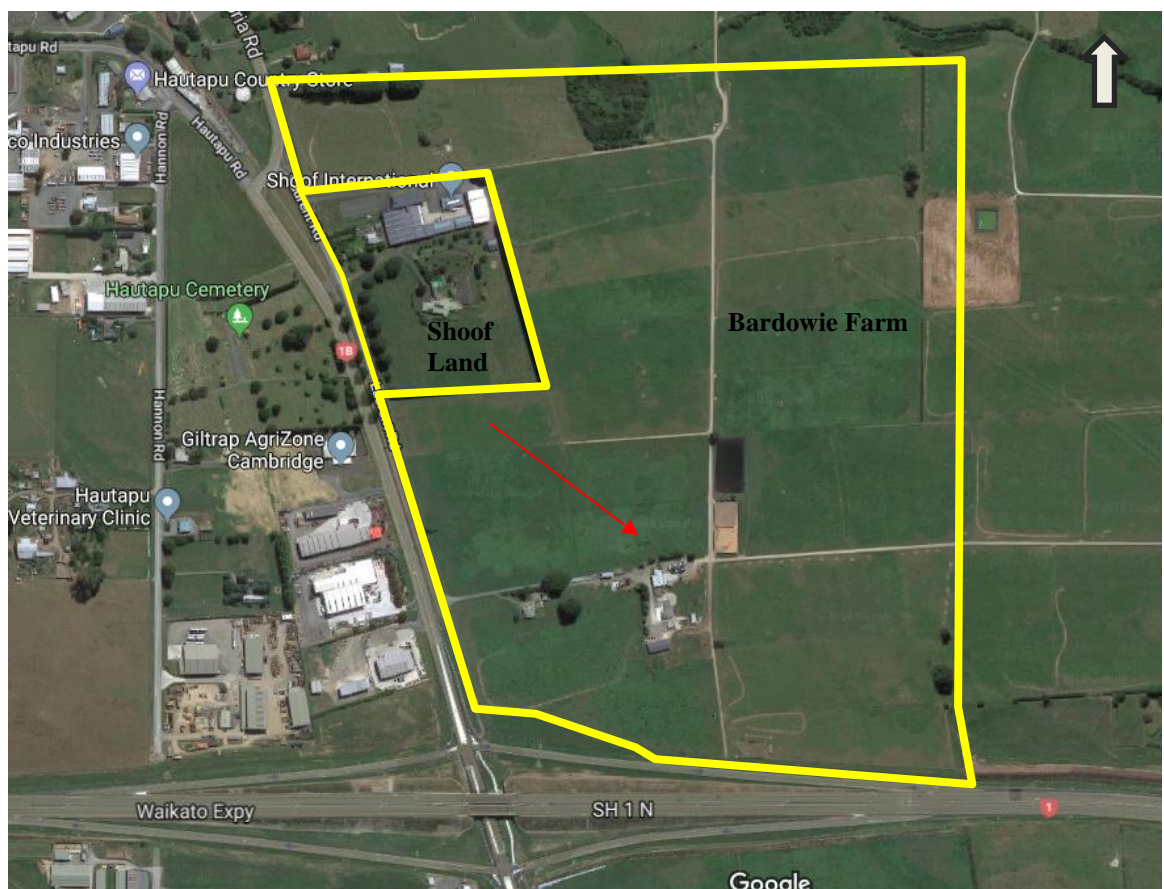


Figure 16. Aerial view of the Bardowie Industrial Precinct which is outlined in yellow with Fonterra Compound indicated by red arrow (source: Google Maps)

The majority of the features of the recorded archaeological sites could not be relocated during the field survey. This indicates that the landscape has undergone significant modification through irrigation installation, historic farming practices and stock damage. While some of the features recorded from early aerials are no longer visible on the surface it is likely that much of the deeper archaeology and features will have survived. This is particularly the case for borrow pits, which can exist to significant depths. It is noted that a recent soil study indicated that Tamahere soil is not present on Bardowie Farm and that the soil previously classified as Tamahere is actually a Horotiu silt loam with some gravel present. This assessment was not able to be confirmed during the survey, due to the limited nature of the subsurface testing undertaken. Details of the survey findings are provided below.

S15/474

The site record identifies three borrow pits from aerial photographs, but six were identified during the field survey. Ground surveyed borrow pits 1-4 were grouped close together (Figure 17) and varied from 3.5m to 7m in length and 2m to 3m in width. The four were identified as a single large borrow pit on the historic aerial. Ground survey borrow pit 5 was large, measuring 13m long by 10m wide, and was confirmed on the historic aerial. The remaining borrow pit recorded in the site record form (SRF) was identified on the aerial but not found during the survey. Ground survey borrow pit 6 (Figure 17) measured 10m long by 3.5m wide and was located to the east of S15/474; this was not confirmed on the historic aerial. Test pit 1 (Figure 17, Figure 19) was excavated in the centre of the four surveyed borrow pits (1-4). It measured 240mm square and was 380mm deep. The stratigraphy was mid brown moderate-loose compacted organic rich topsoil above light orange/brown loam with rare subangular gravel inclusions. The boundary between the strata was well defined and regular.

Test pit 2 was excavated to the east of the recorded point of S15/474 in an area of ground vegetation variability (Figure 17). The dimensions were 240mm by 250mm and 700mm deep (Figure 19). The mid brown organic rich topsoil was loosely compacted with frequent wood and occasional rock inclusions. The lower loam was not reached and the tools used were not sufficient to reach further depths. An aerial from 2012 (Figure 20) indicated that this area of the farm had a recently removed structure and a large tree, explaining the deep soil and inclusions.

S15/475 and S15/476

Only a single borrow pit (7) was identified in the vicinity of sites S15/475 and S15/476 during the field survey (Figure 18). It measured 10m long by 8m wide and the historic aerial confirmed this as a large borrow pit associated with S15/475. The historic aerial identified the remaining seven borrow pits as recorded in the SRF to the southeast of the surveyed pit. All four borrow pits indicated in the S15/476 SRF were identified in the historic aerial but not found during the survey (Figure 18). Test pit 3 was excavated to the west of the point location of S15/475 (Figure 18). It measured 240mm by 250mm and 310mm deep, with the mid brown organic topsoil to a depth of 210mm overlying the light brown loam (Figure 21). Test pit 5 was excavated to the northwest of the point location of S15/476 (Figure 18). It measured 240mm by 270mm and a total depth of 320mm (Figure 21). The stratigraphy was 210mm thick mid-brown organic rich topsoil above light brown/orange fine loam.

Additional Areas

Two potential dual borrow pits (8 and 9) were identified in the southern section of the survey area (Figure 22). Each consisted of a pair of pits separated by a narrow buttress. Pair 8 measured a total of 10m long by 9m wide. Pair 9 measured a total of 12.5m long and 8m wide. However, the historic aerial indicates that both these areas appear to be areas of farming modification and do not reflect archaeology.

Test pit 4 (Figure 22) was excavated at the southern end of the survey area approximately half way between the eastern and western boundaries. It measured 250mm by 260mm and was 530mm deep. The mid brown organic rich topsoil was deeper here than in other parts of the survey area, reaching a depth of 420mm before the light brown orange loam.



Figure 17. Map of survey features in northern survey area overlaid on a 1963 aerial near archaeological site S15/474

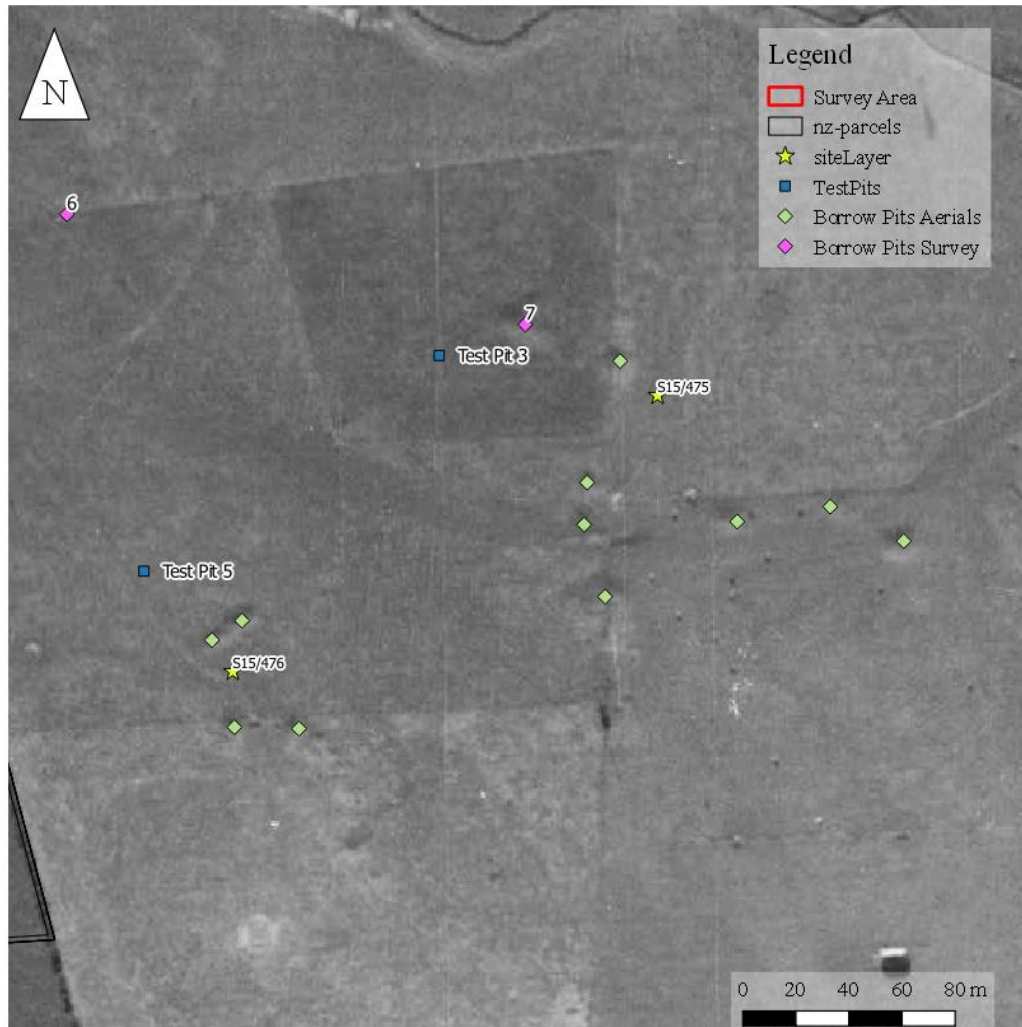


Figure 18. Map of survey features in the central survey area overlaid on a 1963 aerial near archaeological sites S15/475 and S15/476



Figure 19. Left photograph showing Test Pit 1 and right photograph showing Test pit 2



Figure 20. 2012 aerial showing evidence of previous structure (source Waipa District Council GIS)



Figure 21. Left Test Pit 3 and right Test Pit 5



Figure 22. Map of survey features in southern survey area overlaid on a 1963 aerial with photograph showing detail of Test pit 4 in lower inset

DISCUSSION AND CONCLUSIONS

Summary of Results

Three archaeological sites have been previously recorded in the Bardowie Industrial Precinct, S15/474, S15/475 and S15/476. All of the sites consist of borrow pits and are associated with Maori horticulture. Borrow pits are a common site type in the area and the sites are part of the broader archaeological landscape of Maori settlement and horticulture in the Waikato Basin. The sites were originally recorded from visual inspection of historic aerial photographs and had not been visited in the field, prior to the field survey conducted for this assessment. The current survey identified the presence of six borrow pits near recorded S15/474 (three were originally recorded), one borrow pit at S15/475 (eight were originally recorded), and none of the four borrow pits recorded as S15/476 were able to be identified. It was noted that the upper layers of the soil have been modified through past activities that would have damaged or destroyed archaeological remains that may have existed close to the ground surface. However, borrow pits are generally deep features and archaeological remains are likely to be present at deeper levels. The presence or absence of Tamahere soil was not able to be confirmed during the survey due to the limited nature of subsurface testing.

Maori Cultural Values

This is an assessment of archaeological values and does not include an assessment of Maori cultural values. Such assessments should only be made by the tangata whenua. Maori cultural concerns may encompass a wider range of values than those associated with archaeological sites. The historical association of the Bardowie Industrial Precinct with the tangata whenua is evident from the recorded sites in the general area, traditional histories and known Maori place names.

Survey Limitations

It should be noted that archaeological survey techniques (based on visual inspection and minor sub-surface testing) cannot necessarily identify all sub-surface archaeological features or detect wahi tapu and other sites of traditional significance to Maori, especially where these have no physical remains.

Archaeological Value and Significance

The Waikato Regional Policy Statement (RPS) identifies several criteria for evaluating the significance of historic heritage places. In addition, 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 2006: 9-10). Both sets of criteria have been used to evaluate the value and significance of the archaeological sites S15/474, S15/475 and S15/476. As the sites are all of a similar nature they have been evaluated collectively (see Table 7 and Table 8).

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 using 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 value also includes contextual (heritage landscape) value. Archaeological sites may also have other historic heritage values including historical, architectural, technological, cultural, aesthetic, scientific, social, spiritual, traditional and amenity values.

Overall, sites S15/474, S15/475 and S15/476 are considered to have limited archaeological value based on the criteria discussed. This relates mainly to the nature of the sites as borrow pits, which are very common in the area (for instance 489 such features were identified within the broad Waikato Expressway Study Area (Campbell 2012:485). As well, borrow pits have been extensively studied in previous archaeological investigations and it is not considered likely that the borrow pit sites would contribute any significant new information to the understanding of Maori horticultural practices. However, borrow pits at other archaeological sites in the area have been found to contain material suitable for carbon dating. If such material is present in the borrow pits in the Bardowie Industrial Precinct, the archaeological value of the three sites would be increased based on their information potential regarding dates of usage, which could provide information on how Maori settlement patterns developed over time, a subject which is not clearly understood at present. The presence of Tamahere soil in the Bardowie Industrial Precinct has not been confirmed and a recent soil study at Bardowie Farm, reclassified the previously identified Tamahere soil as a gravelly Horotiu soil. If gardening soils are present they would represent another element of the archaeological landscape but would not add significantly to the archaeological value of the sites, as gardening soils are commonly associated with borrow pits and their usage well understood.

Table 7. Assessment of the archaeological values of sites S15/474, S15/475 and S15/476 based on Heritage NZ criteria (Heritage NZ 2006: 9-10)

Value	Assessment
Condition	The landscape has undergone significant modification through irrigation installation, historic farming practices and stock damage and in general, archaeological features are no longer visible on the surface. However, it is likely that much of the deeper archaeology and features have survived.
Rarity	The sites are not rare as borrow pits are a very common site type in the area.
Contextual value	The borrow pits are associated with an archaeological landscape associated with Maori settlement and horticulture in the local and regional area. The presence of gardening soils has not been confirmed, but if present would not add significantly to the archaeological value of the sites.
Information potential	The formation and usage of borrow pits is well understood and it is not considered likely that the archaeological sites would contribute any new or significant information to the site type. It is, however, noted that dates of early settlement and occupation patterns in the area are not well understood and the three archaeological sites have the potential to contain material suitable for radiocarbon dating, which could add to the understanding of these processes.
Amenity value	The borrow pits are situated on private land and most surface evidence has been obscured.
Cultural associations	The sites have Maori cultural association. The cultural significance of the sites is for tangata whenua to determine.
Other	No other values have been identified.

Table 8. Assessment of the heritage significance of sites S15/474, S15/475 and S15/476 based on the Waikato Regional Policy Statement (Section 10A Table 10.1)

Archaeological Qualities	
Information	The sites have limited potential to provide new information on horticultural activities in the area and the creation and use of borrow pits is well understood
Research	The sites have limited to moderate potential to provide dating information that could add to the understanding of Maori settlement over time in the local area (which is situated further from a major waterway than the majority of similar site types in the region).
Recognition or Protection	The sites are recorded in the NZAA Site Recording Scheme and as pre-1900 archaeological sites are protected under the provisions of HNZPT Act 2014.
Architectural Qualities	
Not applicable to these sites.	
Cultural Qualities	
Sentiment	The sites are not currently important as a focus of spiritual, political, national or other cultural sentiment. Their Maori cultural value should be determined by tangata whenua.
Identity	The sites are not currently a context for community identity or sense of place and do not provide evidence of cultural or historical continuity.
Amenity or Education	Limited, as the sites are situated on private land and are only visible from close up.
Historic Qualities	
Associative Value	The sites do not have any known direct association with, or relationship to, a person, group, institution, event or activity that is of historical significance to Waikato or the nation.
Historical Pattern	If appropriate material is present for dating purposes it could be used to provide information on temporal patterns of Maori settlement in the local area.
Scientific Qualities	
Information	The site does not have any particular potential to contribute information about an historic figure, event, phase or activity.
Potential Scientific Research	The research potential of the site is of an archaeological nature and is addressed under the first heading.
Technological Qualities	
Technical Achievement	The creation of manmade gardening soils was an innovative adaptation to a new environment and the borrow pit as part of this process has some limited technical value.

Effects of the Proposal

The proposed rezoning of the Bardowie Industrial Precinct has the potential to affect the three previously recorded archaeological sites (Figure 23). The identification of the sites was originally through inspection of aerial photographs and the sites had not been visited in the field prior to the survey for this assessment. The results of the survey were that six borrow pits were identified in the general area around S15/474 and one borrow pit was identified near S15/475. No evidence of archaeological remains was identified at S15/476 and no evidence Tamahere soils was identified during the survey. However, the other borrow pits originally identified in the site record forms (seven others at S15/475 and four at S15/476) are still likely to be present subsurface, and it is possible that additional pits and associated garden soils are present within the property.

As can also be seen in Figure 23, the three archaeological sites and borrow pits identified during the survey are located within the future development area. Layout plans and design for the proposed future development in this area have not been prepared at present and avoidance of the archaeological sites should be considered in the design of the future development. This could include complete avoidance of the sites or avoiding cut earthworks in the vicinity of the some or all of the pits. However, as the sites are considered to have limited archaeological value, the overall level of effects if any or all of the sites are not able to be avoided by future development is considered to be minor and can be mitigated through collection of information (particularly through collection of material suitable for radiocarbon dating) under the provisions of the HNZPTA. It is also noted that the presence of additional archaeological remains (which may include the presence of gardening soils) is considered likely and that these will not be able to be identified prior to topsoil stripping as previous impacts to upper ground layers have obscured or destroyed much of the surface evidence of archaeological sites. Effects on the wider archaeological landscape are also considered to be minor if archaeological monitoring to record any archaeological remains is conducted during the preliminary earthworks.

Figure 23 also shows two further proposed future development areas (Stage 1 and Stage 2). Layout and design plans have not been prepared for these areas. No archaeological sites have been identified within the boundaries of Stages 1 and 2, but in any area where archaeological sites have been recorded in the general vicinity it is possible that additional unrecorded subsurface remains may be exposed during development. It is considered likely that unrecorded subsurface archaeological sites will be exposed during future development in the Stage 1 and 2 areas, as the presence of 7 borrow pits to the north was confirmed during the survey for this assessment. Past impacts would have obscured much of the surface evidence of archaeological remains, if any exist in these areas, but would not necessarily have affected remains at deeper levels.

The Shoof land has been impacted by construction of offices, factory buildings and a residence with extensive landscaping. The potential for archaeological sites to have survived in this area is considered lower than at Bardowie Farm, although the presence of archaeological remains (especially borrow pits) at deeper levels cannot be ruled out completely.

It should be noted that this assessment report has been prepared for a private plan change submission and that the layout and design of future development is currently undecided. This report will require updating once the details of the future development are available to determine the specific effects on archaeological values.

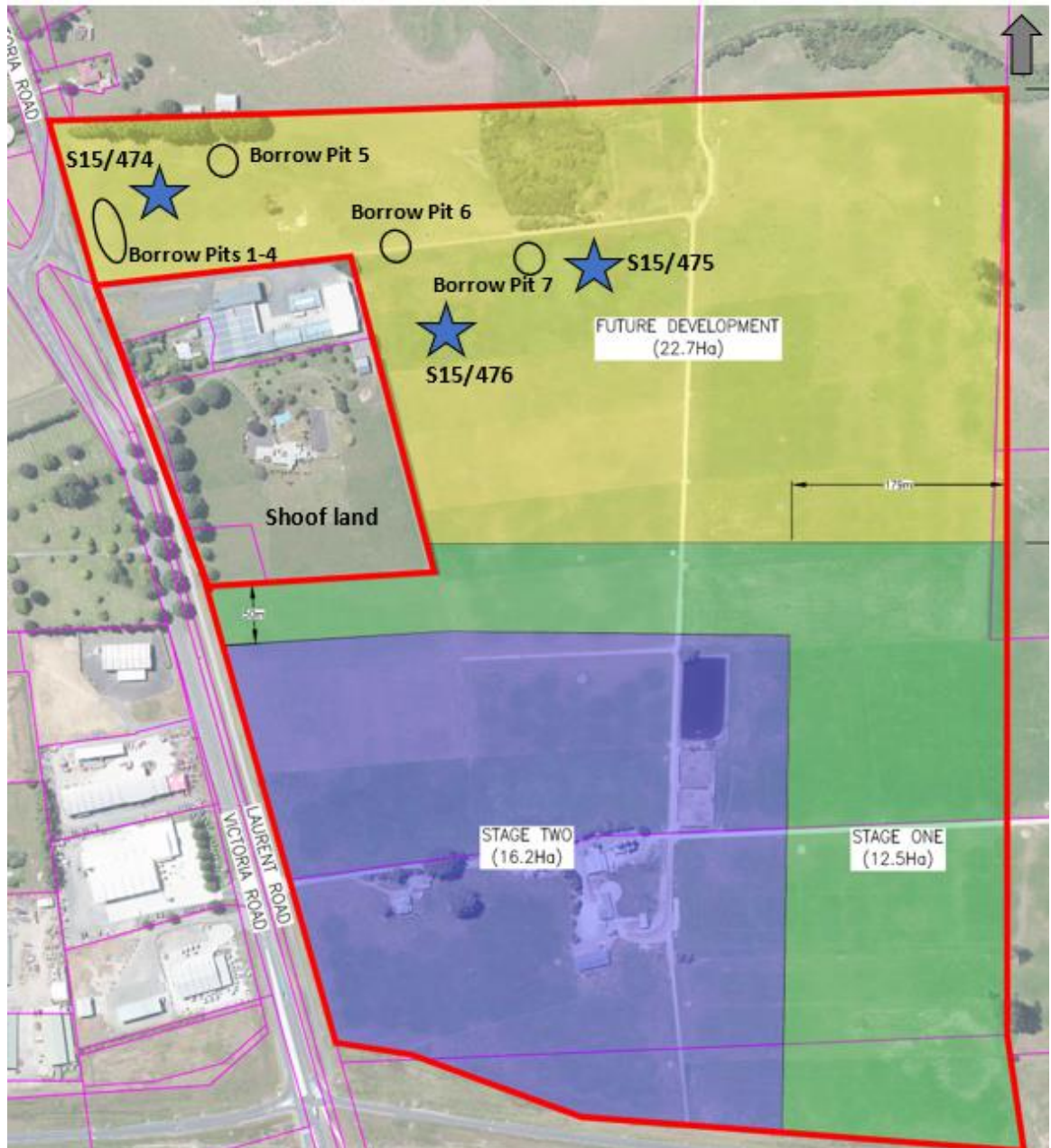


Figure 23. Plan showing the Bardowie Industrial Precinct (red outline) and the locations of the recorded archaeological sites; the areas where borrow pits were identified during the survey for this assessment are indicated by black circles (source: McCaffery)

Resource Management Act 1991 Requirements

Section 6 of the RMA recognises as matters of national importance: ‘the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga’ (S6(e)); and ‘the protection of historic heritage from inappropriate subdivision, use, and development’ (S6(f)).

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’. There is a duty to avoid,

remedy, or mitigate any adverse effects on the environment arising from an activity (S17), including historic heritage.

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 Maori, 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 archaeological and other heritage sites. The plans are prepared under the rules of the RMA. The Operative Waipa District Plan and Waikato Regional Policy Statement are relevant to the proposed activity.

This assessment has established that the proposed private plan change and possible future development in the Bardowie Industrial Precinct has the potential to affect three previously recorded archaeological sites – S15/474, S15/475 and S15/476. Together 15 borrow pits were recorded under these sites from historic aerials. While only 7 borrow pits were identified during the survey for this assessment, more are likely to be present subsurface. These sites are not scheduled on the District Plan and are considered to be of limited archaeological/historic heritage value. The proposal also has the potential to affect currently unidentified subsurface archaeological remains that may be exposed during future development in all of the proposed development areas/stages within the Bardowie Industrial Precinct. The potential effects can be appropriately addressed through archaeological monitoring and recording of archaeological sites (or parts of sites) affected by future development under the provisions of the HNZPTA, to recover information relating to the history of the area.

Heritage New Zealand Pouhere Taonga Act 2014 Requirements

In addition to any requirements under the RMA, the HNZPTA 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)², –

(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

² Under Section 42(3) an Authority is not required to permit work on a pre-1900 building unless the building is to be demolished.

(b) includes a site for which a declaration is made under section 43(1)³,

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 Maori 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 Maori Heritage Council of Heritage NZ. 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.

An Authority must be obtained from Heritage NZ before any work associated with future development can be carried out that may affect archaeological sites S15/474, S15/475 and S15/476, including the 7 borrow pits identified during the survey. The conditions of the authority are likely to include the archaeological recording/investigation of any remains affected. As the entire Bardowie Industrial Precinct is considered likely to contain additional unrecorded subsurface archaeological remains, it is recommended that all future development be included in an Authority. This approach would have the advantage of allowing any archaeology uncovered during the development of the property to be dealt with immediately, avoiding delays while an Authority is applied for and processed.

Conclusions

Three archaeological sites (S15/474, S15/475 and S15/476) consisting of 15 borrow pits identified through inspection of aerial photographs have been previously identified in the Bardowie Industrial Precinct. During the survey for this assessment 7 borrow pits were able to be identified in the vicinity of sites S15/474 and S15/475. The archaeological sites are associated with Maori gardening and are a common site type in the area. Their archaeological value is considered to be limited. Avoidance of the archaeological sites should be considered in future development plans, but if this is not feasible the potential effects of future development are considered to be minor. The potential effects on archaeological values can be appropriately mitigated through archaeological investigation and recording to recover information relating to the history of the area, under the provisions of the HNZPTA.

Once future development plans become available this report will require updating, with additional surveys (if required) and detailed assessment of the proposed development.

³ 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.

RECOMMENDATIONS

- Future development plans should take account of the locations of the recorded archaeological sites and ensure that they are avoided to the extent possible.
- If any of the recorded sites cannot be avoided, an Authority must be applied for under Section 44(a) of the HNZPTA and granted by Heritage NZ prior to the start of any works that will affect them. (*Note that this is a legal requirement*).
- Because it is likely that additional unrecorded sites may be exposed during earthworks, all future development works within the Bardowie Industrial Precinct should be included under an Authority to prevent delays if additional sites are discovered when works are under way.
- Further assessment will be required once plans for the future development have been prepared and this report should be updated accordingly.
- The tangata whenua should be consulted regarding the cultural effects of the proposed private plan change and possible future development. This will also be required as part of the authority application.

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Old Newspaper Article sourced at <https://paperspast.natlib.govt.nz/>



The Waikato Independent Volume XXXVIII Issue 3424 27 October 1938 “A Pioneer Passes Mr. James Taylor of “Bardowie”

Waikato Independent Volume XXXII Issue 2851, 19 May 1932 “Small Farm Scheme “Bardowie Property Offered”

Daily Southern Cross Volume XX Issue 2296 29 November 1864 “Cambridge” From a Correspondent.

APPENDIX A: SITE RECORD FORMS

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

 <p>Site Record Form</p>	<p>NZAA SITE NUMBER: S15/474</p> <p>SITE TYPE: Maori horticulture</p> <p>SITE NAME(s):</p> <p>DATE RECORDED: 22/03/2012</p>
<p>SITE COORDINATES (NZTM) Easting: 1816087 Northing: 5806748 Source: On Screen</p>	
<p>IMPERIAL SITE NUMBER: METRIC SITE NUMBER:</p>	
 <p>Scale 1:2,500</p> <p>Land Information New Zealand, Eagle Technology</p>	
<p>Finding aids to the location of the site</p>	
<p>Brief description 3 borrow pits in an area of 120 x 20 m, visible on aerial photo SN266/834/62.</p>	
<p>Recorded features Borrow pit</p>	
<p>Other sites associated with this site</p>	

Printed by: ellencameron

10/07/2018

1 of 3

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD HISTORY	NZAA SITE NUMBER: S15/474
<p>Site description</p> <p>Updated 09/07/2018 (Field visit), submitted by ellencameron , visited 25/06/2018 by Larsen, Bernie Grid reference (E1816087 / N5806748)</p> <p>updated on 09/07/2018: Ground surveyed borrow pits 1-4 were grouped close together (shown on 1963 aerial) and varied from 3.5 to 7 m in length and 2 to 3 m in width. The four were identified as a single large borrow pit on the historic aerial. Ground survey borrow pit 5 was large measuring 13 m long by 10 m wide and was confirmed on the historic aerial. The remaining two borrow pits as recorded indicated in the site record form (SRF) were identified with the aerial but not found during the survey. Ground survey borrow pit 6 measured 10 m long by 3.5 m wide and was located to the east of S15/474 and not confirmed on the historic aerial.</p> <p>Updated 09/07/2018 (Field visit), submitted by ellencameron , visited 25/06/2018 by Larsen, Bernie Grid reference (E1816087 / N5806748)</p> <p>updated on 09/07/2018: Ground surveyed borrow pits 1-4 were grouped close together (Figure 1) and varied from 3.5 to 7 m in length and 2 to 3 m in width. The four were identified as a single large borrow pit on the historic aerial. Ground survey borrow pit 5 was large measuring 13 m long by 10 m wide and was confirmed on the historic aerial. The remaining two borrow pits as recorded indicated in the site record form (SRF) were identified with the aerial but not found during the survey. Ground survey borrow pit 6 measured 10 m long by 3.5 m wide and was located to the east of S15/474 and not confirmed on the historic aerial.</p> <p>Updated: 22/03/2012 - NZTM E1816087 / N5806748 (On Screen). 3 borrow pits in an area of 120 x 20 m, visible on aerial photo SN266/834/62. Aerial photo dates from 1943. The site has not been visited and its current condition has not been ascertained. Updated by: Campbell, Matthew.</p> <p>Condition of the site</p> <p>Updated 09/07/2018 (Field visit), submitted by ellencameron , visited 25/06/2018 by Larsen, Bernie</p> <p>The site has been damaged from stock grazing. There is also an underground irrigation system on the farm that has damaged the area.</p> <p>Statement of condition</p> <p>Current land use:</p> <p>Threats:</p>	

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD INVENTORY


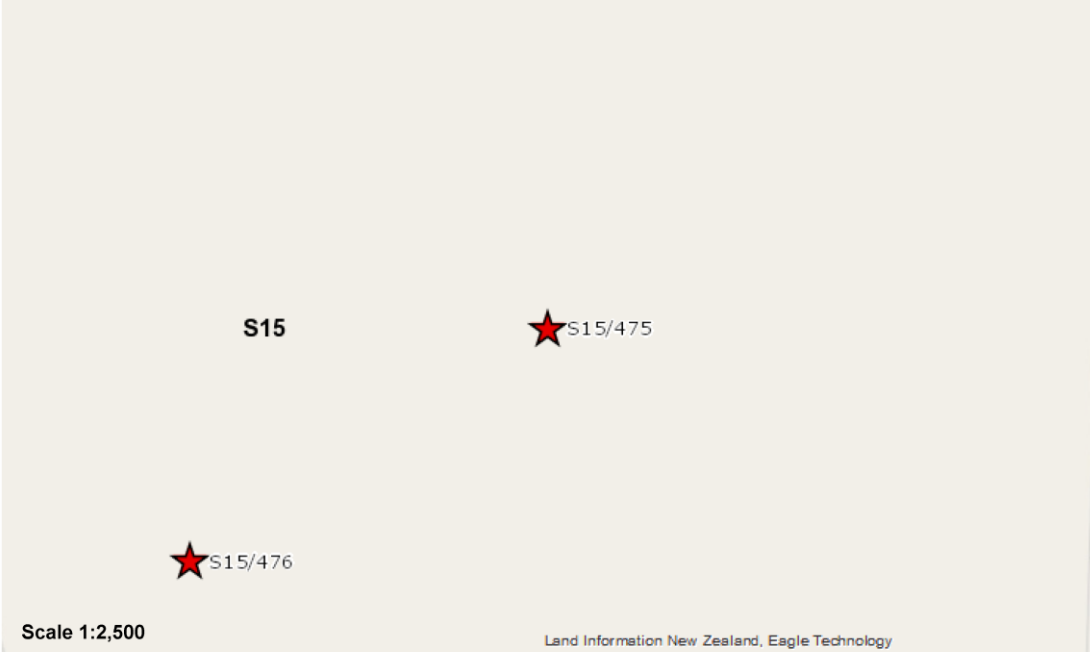
NZAA SITE NUMBER: S15/474

Supporting documentation held in ArchSite

1963 aerial photograph showing the location of borrow pits and June 2018 survey results



NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

 <p>Site Record Form</p>	<p>NZAA SITE NUMBER: S15/475</p> <p>SITE TYPE: Maori horticulture</p> <p>SITE NAME(s):</p> <p>DATE RECORDED: 22/03/2012</p>
<p>SITE COORDINATES (NZTM) Easting: 1816527 Northing: 5806634 Source: On Screen</p>	
<p>IMPERIAL SITE NUMBER: METRIC SITE NUMBER:</p>	
 <p>S15 ★ S15/475</p> <p>★ S15/476</p> <p>Scale 1:2,500 Land Information New Zealand, Eagle Technology</p>	
<p>Finding aids to the location of the site</p>	
<p>Brief description 8 borrow pits in an area of 180 x 70 m, visible on aerial photo SN266/834/63.</p>	
<p>Recorded features Borrow pit</p>	
<p>Other sites associated with this site</p>	

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10/07/2018

1 of 3

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

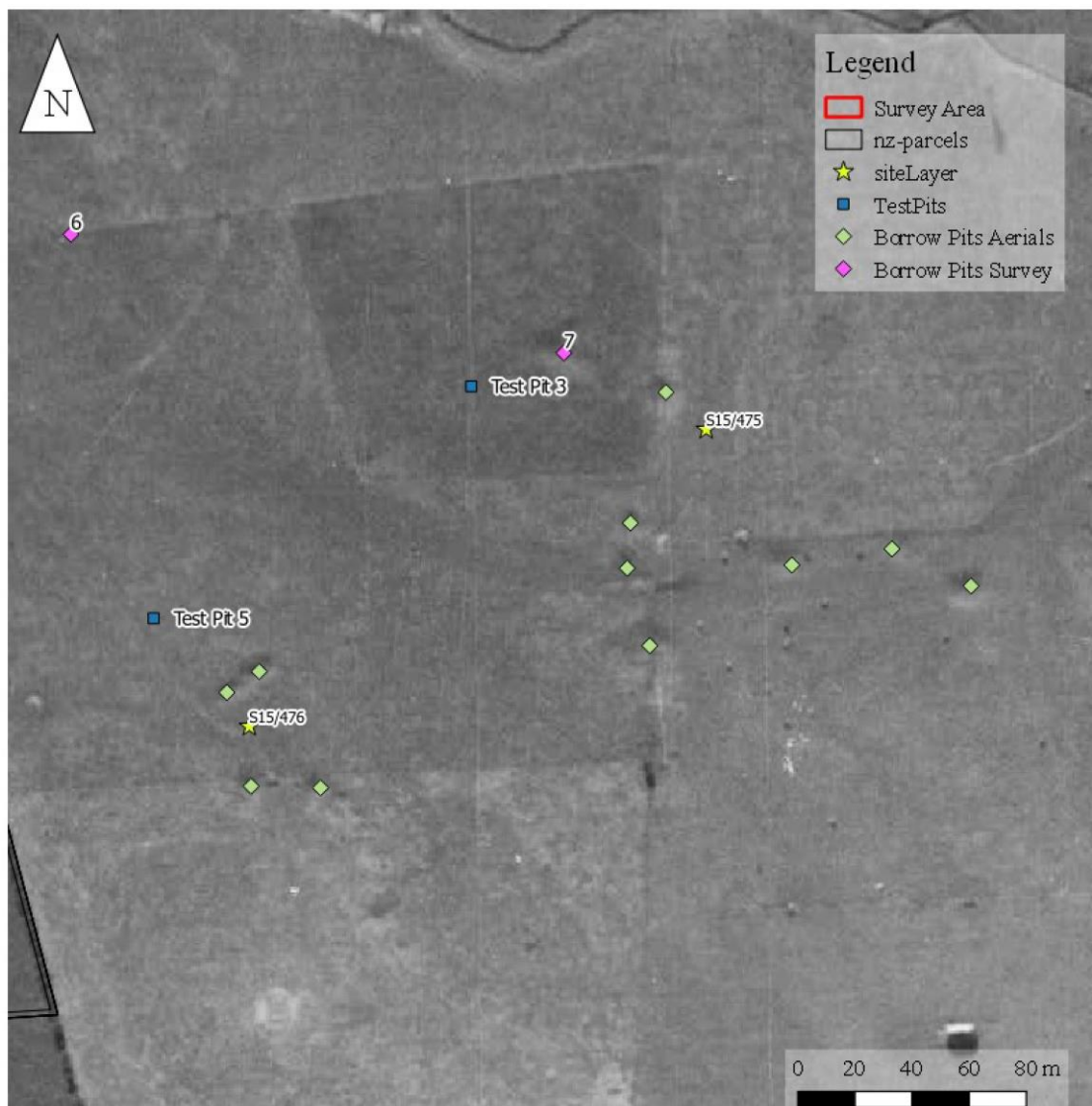
SITE RECORD HISTORY	NZAA SITE NUMBER: S15/475
<p>Site description</p> <p>Updated 09/07/2018 (Field visit), submitted by ellencameron , visited 25/06/2018 by Larsen, Bernie Grid reference (E1816527 / N5806634)</p> <p>Updated on 09/07/2018: Only a single borrow pit was identified in the vicinity of S15/475 during the field survey (shown on the 1963 aerial). It measured 10 m long by 8 metres wide and the historic aerial confirmed this as a large borrow pit associated with S15/475. The historic aerial identified the remaining seven borrow pits as recorded in the SRF to the south east of the surveyed pit.</p> <p>Updated: 22/03/2012 - NZTM E1816527 / N5806634 (On Screen). 8 borrow pits in an area of 180 x 70 m, visible on aerial photo SN266/834/63. Aerial photo dates from 1943. The site has not been visited and its current condition has not been ascertained. Updated by: Campbell, Matthew.</p> <p>Condition of the site</p> <p>Updated 09/07/2018 (Field visit), submitted by ellencameron , visited 25/06/2018 by Larsen, Bernie</p> <p>The land on the farm has been damaged by grazing and installation of an underground irrigation system.</p> <p>Statement of condition</p> <p>Current land use:</p> <p>Threats:</p>	

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION


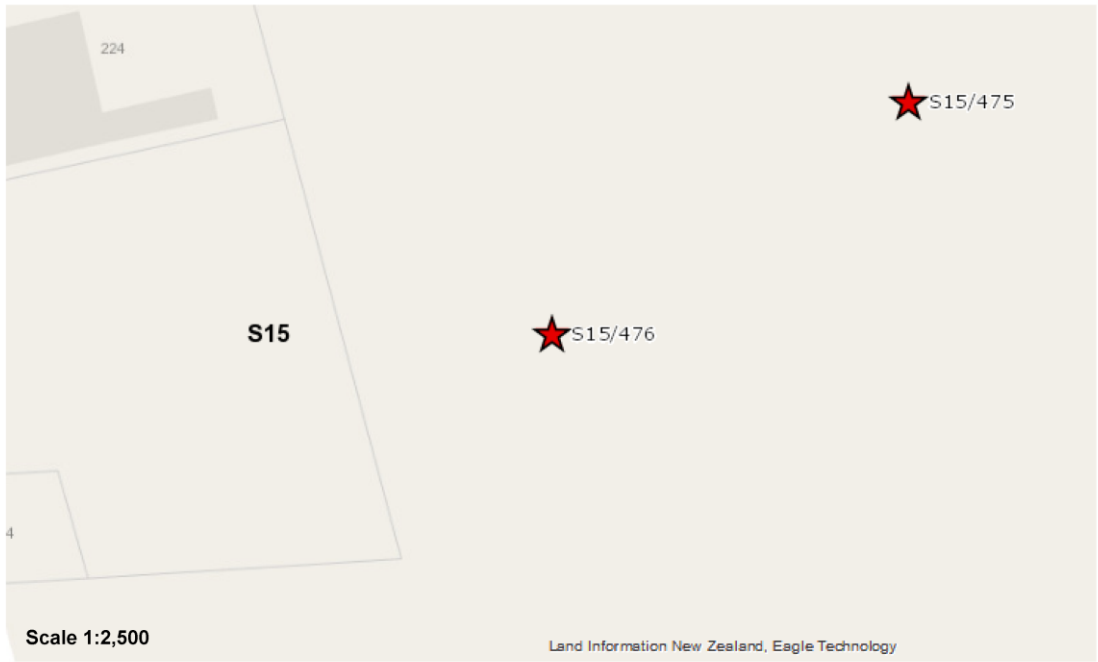
SITE RECORD INVENTORY	NZAA SITE NUMBER: S15/475
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Supporting documentation held in ArchSite

1963 aerial with borrow pits and June 2018 survey results



NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

 <p>Site Record Form</p>	<p>NZAA SITE NUMBER: S15/476</p> <p>SITE TYPE: Maori horticulture</p> <p>SITE NAME(s):</p> <p>DATE RECORDED: 22/03/2012</p>
<p>SITE COORDINATES (NZTM) Easting: 1816367 Northing: 5806530 Source: On Screen</p>	
<p>IMPERIAL SITE NUMBER: METRIC SITE NUMBER:</p>	
 <p>Scale 1:2,500</p> <p>Land Information New Zealand, Eagle Technology</p>	
<p>Finding aids to the location of the site</p>	
<p>Brief description 4 borrow pits in an area of 90 x 20 m, visible on aerial photo SN266/834/63.</p>	
<p>Recorded features Borrow pit</p>	
<p>Other sites associated with this site</p>	

Printed by: ellencameron

10/07/2018

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NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD HISTORY	NZAA SITE NUMBER: S15/476
<p>Site description</p> <p>Updated 09/07/2018 (Field visit), submitted by ellencameron , visited 25/06/2018 by Larsen, Bernie Grid reference (E1816367 / N5806530)</p> <p>Updated 09/07/2018: The borrow pits were not able to be relocated during the site visit.</p> <p>Updated: 22/03/2012 - NZTM E1816367 / N5806530 (On Screen). 4 borrow pits in an area of 90 x 20 m, visible on aerial photo SN266/834/63. Aerial photo dates from 1943. The site has not been visited and its current condition has not been ascertained. Updated by: Campbell, Matthew.</p> <p>Condition of the site</p> <p>Updated 09/07/2018 (Field visit), submitted by ellencameron , visited 25/06/2018 by Larsen, Bernie unknown- not able to be relocated during 2018 site visit.</p> <p>Statement of condition</p> <p>Current land use:</p> <p>Threats:</p>	

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

SITE RECORD INVENTORY	NZAA SITE NUMBER: S15/476
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Supporting documentation held in ArchSite

1963 aerial photograph with borrow pits and June 2018 survey results

