

Archaeological assessment of effects

Brymer Farms

Report prepared for: Brymer Farms Limited



Matthew Gainsford
November 2025

Contents

Summary	1
Introduction	2
Code of conduct.....	2
Statutory requirements.....	2
Waikato District Plan.....	3
Heritage New Zealand Pouhere Taonga Act (HNZPTA) 2014.....	3
The Resource Management Act (RMA) 1991.....	3
Project scope and description	5
Geology of the Middle Waikato Basin	8
Local environment	10
Previously recorded archaeology	12
The New Zealand Heritage List/Rārangī Kōrero	12
Historical Background	13
Māori.....	13
European.....	13
Local history	14
Historic newspapers.....	15
Historic plans and aerials	16
Historic plans.....	16
Historic aerials.....	18
LiDAR imagery	20
Site visit.....	21
Assessment of Archaeological Values	23
Heritage New Zealand criteria	24
Assessments of effects on archaeological values	24
Conclusions and recommendations	25
References & Bibliography	26

Figures

Figure 1. Location for the proposed Brymer development (Site) in the wider landscape (Source: LINZ).	2
Figure 2. Proposed Brymer Farms Masterplan (Site) (B&A Urban & Environmental).	5
Figure 3. Map from Lowe (2010) showing the Hamilton Basin.	8
Figure 4. Block diagram showing the principal landform units of the Hamilton Basin (Lowe 2010:4). .	10
Figure 5. Soil classification (LRIS, S-Map online).	11
Figure 6. Soil drainage (LRIS, S-Map Online).	11

Figure 7. Previously recorded archaeological sites in the general vicinity of the Site, taken from the NZAA database Archsite in November 2025 (ArchSite).	12
Figure 8. Excerpt from the Waiakto Times 1889.	15
Figure 9. Excerpts from the Waikato Times 1889.	15
Figure 10. Excerpt from SO350 (1865), Lot 103 and paper road shown by blue ellipse (Quickmap).	17
Figure 11. Excerpt from SO3037 (1883). The drainage reserve is highlighted by the blue line (Quickmap).	17
Figure 12. Figure 6. Part of Newall's Sketch Map (Reproduction), 1874. Thought to have been prepared by the military leader Captain Stuart Newall the map shows various sites and features of interest. The map is a sketch and therefore it is not possible to define the exact area for the proposed development, but it has been approximated by the red ellipse through georectification which is approximate (1973/38/4 – Newall’s Map: Collection of Te Whare Taonga o Waikato Museum & Gallery).	18
Figure 13. Excerpt from earliest available aerial photography from 1943 (SN266-830/34) (Source: Retrolens).	19
Figure 14. Excerpt from aerial photography from 1995 (SN9401-B/10) (Source: Retrolens).	19
Figure 15. LiDAR excerpt from 2008 (Source: LINZ).	20
Figure 16. Lidar derived hillshade model from DEM data taken in 2023 that shows the Site as mostly flat with some hills to the north and south (Source: LINZ).	20
Figure 17. Historic Drainage Reserve, represented currently as a field drain. Drone image is taken facing east from the race.....	21
Figure 18. Historic Drainage Reserve, represented currently as a field drain. Drone image is taken facing west from the race.....	21
Figure 19. Image facing west of current drain form and function.....	22
Figure 20. Drone image showing northern hill area.	22
Figure 21. Done image showing the southern smaller hill.	22

Summary

Brymer Farms Limited (Client) through B&A Urban & Environmental (BAUE) commissioned Redox Cultural Heritage Services Ltd (RCHS) to compile this Archaeological Assessment of Effects for a Fast Track development called Brymer Farms, 127 Brymer Road, Rotokauri, Hamilton. It affects land parcels: Lot 1 DPS 87291, Lot 3 DP 385271 & Part Lot 2 DP 18355. The area affected is referred collectively in this assessment as the Site; total area for the proposed development is approximately 80.993 hectares.

The Site has been subject to a background desktop study and site visit to identify the potential for archaeological sites, features or deposits whether they be recorded or unrecorded. This review includes any/relevant/available historic documents, aerial imagery, historic maps, archaeological reports and archaeological site data held in the New Zealand Archaeological Association database, ArchSite.

Results from the desktop research identified potential for unrecorded archaeology within the Site. A site visit was requested by the client to clarify this potential. The site visit confirmed that a pre-1900 historic drainage was still visible crossing the site and along its eastern southern boundary, recorded in the NZAA database ArchSite as S14/509 – Ditch. Therefore, an Authority from Heritage New Zealand Pouhere Taonga must be applied for prior to any works that may modify/destroy any archaeology.

Mana Whenua should also be consulted at an early stage regarding this assessment, the conclusions reached and the cultural effects of the proposed development which can/may differ from archaeological effects.

Introduction

The Client proposes to undertake a development called Brymer Farms at 127 Brymer Road, Rotokauri, Hamilton (Figure 1). The proposed development comprises a residential and mixed use industrial development within an approximate area of 80.993 hectares. The desktop review/study identified that there were no previously recorded archaeological sites within the Site. However, following the desktop research and a site visit, a pre-1900 Drainage Reserve was identified within the Site, recorded as archaeological site S14/509.

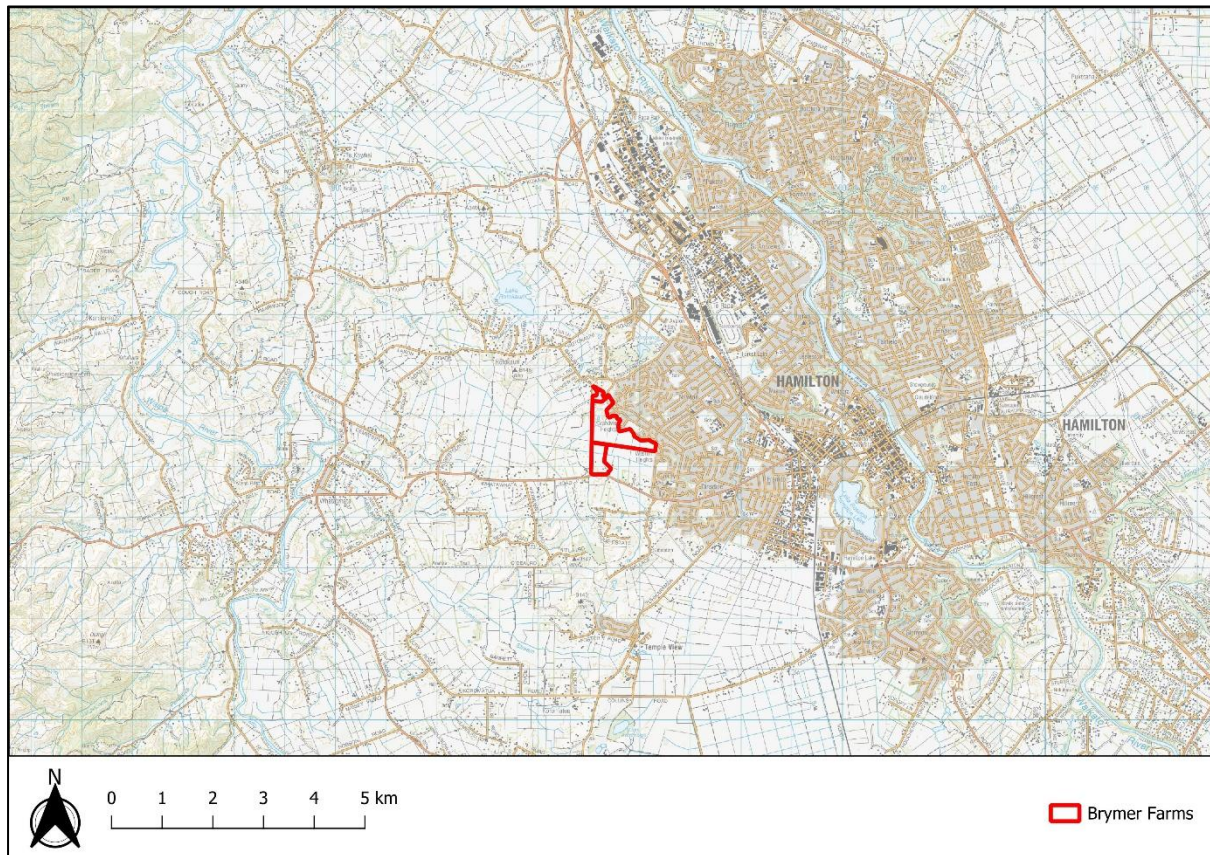


Figure 1. Location for the proposed Brymer development (Site) in the wider landscape (Source: LINZ).

Code of conduct

Although this matter is not before the Environment Court, I confirm that I have read the Code of Conduct for Expert Witnesses outlined in the Environment Court's Practice Note (2023) (Code) and have complied with it in preparing this statement of evidence. If a hearing is held, I also agree to follow the Code when presenting evidence to the Panel.

I confirm that the issues addressed in this brief of evidence are within my area of expertise, except where I state that I rely upon the evidence of other expert witnesses. I also confirm that I have not omitted to consider material facts known to me that might alter or detract from my opinions.

Statutory requirements

The management of archaeological historical and cultural sites and landscapes are controlled by the Resource Management Act (RMA) and its associated District Plans and Regional Policy Statements. Archaeological sites are also explicitly protected through the archaeological provisions of the Heritage New Zealand/Pouhere Taonga Act (NZHPTA 2014). This Act prevents archaeological sites from being modified or destroyed without an Authority from Heritage New Zealand (HNZ).

Waikato District Plan

The Waikato District Plan (fully operative April 2013) outlines operative objectives and policies relating to Historic heritage and archaeology in Part 1, Section 12. Historic heritage items and archaeological sites are listed in Part 3 Appendices, in C: Historic Heritage. Archaeological sites S14/374 and S14/468 were recorded after the formation of the District Plan and are not listed.

Policy clause 12.2.7 states that *'archaeological sites and areas, sites of significance to Māori (including wahi tapu sites and wahi tapu areas), and places of historic significance should be protected from adverse effects of development or activities on those sites.'* Clause 12.3.6 clarifies that any work that may modify, damage or destroy an archaeological site associated with pre-1900 human activity will require an authority from the Historic Places Trust (now HNZPT).

Heritage New Zealand Pouhere Taonga Act (HNZPTA) 2014

The HNZPTA provides blanket protection to all archaeological sites meeting the definition in the Act, whether they are recorded or not. Protection and management of sites is managed by the archaeological authority process, administered by HNZPT. It is illegal to destroy, or modify archaeological sites without an authority to do so from HNZPT.

The HNZPTA 2014 (s6) defines an archaeological site as:

(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 that 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) of the Act¹.

Any person who intends carrying out work that may modify or destroy an archaeological site, or to investigate an archaeological site using invasive archaeological techniques, must first obtain an authority from HNZPT. The process applies to sites on land of all tenure including private, public and designated land. The HNZPTA contains penalties for unauthorised site damage.

The Resource Management Act (RMA) 1991

¹ Such declarations usually pertain to important post-1900 remains with archaeological values.

The *Resource Management Act 1991* (RMA) requires City, District and Regional Councils to manage the use, development, and protection of natural and physical resources in a way that provides for the wellbeing of today's communities while sustaining the potential of natural and physical resources for future generations. The protection of historic heritage from inappropriate subdivision, use, and development is identified as a matter of national importance (section 6f).

Historic heritage is defined as those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, derived from archaeological, architectural, cultural, historic, scientific, or technological qualities.

Historic heritage includes:

- historic sites, structures, places, and areas;
- archaeological sites;
- sites of significance to Māori, including wahi tapu;
- surroundings associated with the natural and physical resources (RMA section 2).

These categories are not mutually exclusive, and some archaeological sites may include above ground structures or may also be places that are of significance to Māori.

Where resource consent is required for any activity the assessment of effects is required to address cultural and historic heritage matters (RMA 4th Schedule).

Project scope and description



Figure 2. Proposed Brymer Farms Masterplan (Site) (B&A Urban & Environmental).

Project Description

The Brymer Farms Limited development (Brymer) is a comprehensively planned, multi-staged residential development providing for the urbanisation and subdivision of the project site.

The Project will provide approximately 1,043 residential units, including approximately 248 apartment units, across a range of housing typologies and densities. Housing will comprise a mix of terraced, duplex and detached dwellings, conventional and compact residential lots, irregular lots, and eight larger rural-residential lots. This range of typologies is intended to provide housing choice while enabling the development pattern to respond appropriately to the physical characteristics, environmental features and constraints of the site.

The master plan also provides for two mixed-use commercial sites, identified as C1 and C2, which will form a neighbourhood scale commercial component within the development. C1 will provide approximately 910 m² of ground-floor commercial gross floor area (GFA), with 24 two bedroom apartments above. C2 will provide approximately 1,274 m² of ground-floor commercial GFA, with 16 two bedroom apartments above. Both sites will incorporate basement car parking, dedicated vehicle access, servicing areas and landscaping. Collectively, C1 and C2 will provide approximately 2,184 m² of commercial GFA and 40 apartments, supporting the day-to-day needs of residents and contributing to a mixed-use neighbourhood environment.

The development will be supported by the necessary transport and three-waters infrastructure. Water supply and wastewater servicing will connect to the IAWAI reticulated networks, with internal reticulation and associated infrastructure established progressively as development is staged. This may include pump stations, storage, reservoirs and mains, where required. Stormwater will be managed through an integrated stormwater management system, with discharge ultimately occurring to the receiving environment within the Waikato District. The stormwater system will incorporate appropriate treatment, attenuation and conveyance measures and will integrate, where appropriate, with proposed wetlands, watercourses, stormwater reserves and other water-sensitive design features throughout the development.

Implementation of the Project will require staged development related earthworks to establish suitable building platforms, a well connected road network, infrastructure corridors, reserves and other components of the master plan. These works will include site formation, cut and fill, retaining, erosion and sediment control, and other enabling works required to facilitate the staged subdivision and development of the site. The proposal will also require the undergrounding of existing power lines within the Applicant's site.

A significant component of the Project is the provision and enhancement of open space and ecological values. The development will provide an integrated network of public and recreational open spaces, pedestrian connections, wetlands, watercourses, stormwater reserves, landscaped areas and retained vegetation. Environmental and ecological mitigation and offsetting will also be provided where required to address effects arising from the development and to support the protection, restoration and enhancement of ecological values across the site and wider receiving environment. Where appropriate, these measures will be integrated with the development's open-space and stormwater networks.

The overall open-space and movement network will connect with the surrounding urban environment and existing reserves, including Rakautahi Park, Brymer Glen Reserve, Brymer Park and Te Kootii Park. These connections will provide links between residential neighbourhoods, commercial and community areas, recreational spaces and the wider transport network.

Overall, Brymer is a large scale, comprehensively planned urban development that will enable approximately 1,043 residential units, including approximately 248 apartments, together with approximately 2,184 m² of commercial GFA. The Project encompasses the subdivision and development of the land and the associated development related earthworks, transport and access infrastructure, water supply and wastewater connections to the IAWAI reticulated networks, stormwater management and discharge, ecological mitigation and offsetting, landscaping, open space, recreation, and other supporting infrastructure necessary to establish the new community.

The Project will be implemented through a multi-staged consenting and development framework, enabling subdivision, land use and infrastructure works to proceed progressively while ensuring that each stage is appropriately serviced and integrated with the wider development and surrounding environment.

The development will be subject to a comprehensive suite of proposed conditions of consent, including a design guide, developed with input from the Applicant's relevant technical and environmental specialists. These conditions will provide the framework for managing the construction, staging, servicing and operation of the development, including earthworks, transport, three-waters infrastructure, stormwater discharges, ecological effects and offsetting, landscaping and open space, and other potential environmental effects associated with the Project.

Collectively, the master plan, supporting technical assessments and proposed conditions of consent provide an integrated framework for the staged delivery and management of Brymer, including measures to avoid, remedy or mitigate adverse environmental effects and, where appropriate, provide environmental offsets (B&A Urban & Environmental).

Geology of the Middle Waikato Basin

The Hamilton Basin features diverse landscapes and soils shaped by geological and climatic processes over thousands of years. It is characterized by four main landscape units: low rolling hills, alluvial plains, low terraces, and gullies; evolving over more than a million years, with significant geological deposits from volcanic activity (Figure 3).

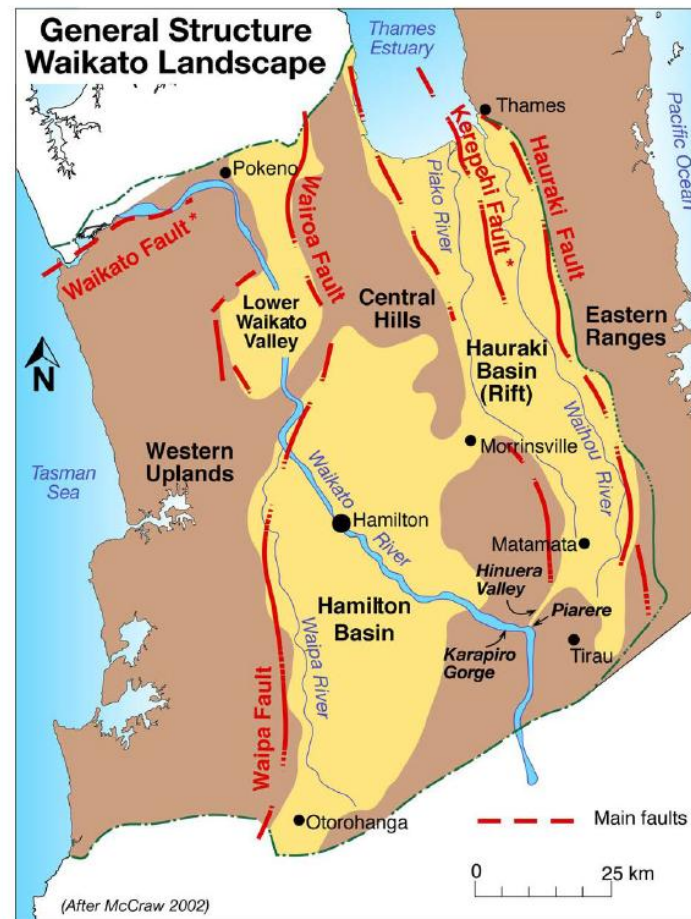


Figure 3. Map from Lowe (2010) showing the Hamilton Basin.

The Hinuera Formation, consisting of volcanogenic alluvium, is a key feature of this landscape with material forming it through deposition over the last 20,000 years. A key factor in the formation of this landscape is the Waikato River which has changed the landscape through sediment deposition and river migration before its more recent entrenchment (Figure 4).

Both the Waikato River, Oranui eruption and Taupo pumice alluvium (Hatepe Eruption) have caused significant changes to the landscape of the middle Waikato basin, shaping the modern environment (Figure 4). During the last one hundred millennia a meandering braided Waikato River has both eroded and deposited sediment across the landscape. This has transformed the landscape into a rolling somewhat flattened environment made up of gently rolling hills composed of raised levees and depressed swales and lower swamps and lakes. After the Oranui eruption the Waikato was forced to change course being redirected away from the Firth of Thames into the Waikato basin, and finally through to its current outlet at Port Waikato (deposition occurred between 23,500–17,000 years BP, with the river beginning to entrench in its modern channel around 17,500 BP) (Lowe 2010). The Waikato's high energy braided river system distributed sediment across the Hamilton Basin in various thicknesses

and consistencies. This landscape, represented as a braided fan, has now been classified as the Hinuera surface, an accumulation/sequence of deposited tephras since the rivers' entrenchment (Lowe 2010: 5; McLeod 1984:2).

After the rivers final course had settled into the current alignment an eruption at Hatepe (c. 1800 BP) directed a lahar flow down the river (Taupo pumice alluvium-TPA). This created, through erosion and deposition, a series of new river terraces along the banks of the river, which are still visible today (Lowe 2010). Aside from natural modification humans have also significantly modified this landscape.

Within the Hamilton Basin soil types reflect a diverse landscape and soil parent materials, have varying and distinct drainage characteristics. These soil classification units can be divided into differing qualities from volcanic ash, weathering, and soils that have been modified by humans. Well-drained soils usually lie on raised deposits and less free draining to poorly drained soils in lower down in swales. For the Hamilton Basin key soil series include Horotiu (well-drained), Bruntwood (moderately well-drained), and Te Kowhai (poorly drained). These soil types have direct importance/correlation to archaeology, especially horticulture, and the likelihood for sites. Solis are primarily formed from volcanic ash and alluvium, with varying clay types. Tamahere soils (man made) have also been identified in soil maps. These are anthropogenic and are modified soils used for agriculture, particularly the growing of tubers, such as, kumara (Lowe 2010).

From the effects of climate changes and the recent influx of humans the Basin has undergone significant changes from climatic shifts and human activity. Studies indicate that the original shrubland-grassland changed successively to a broadleaf-podocarp forest circa 17,500 years ago. During the influx of Māori into inner New Zealand, deforestation and agricultural practices impacted the environment significantly in a relatively short period of time; this was exacerbated with the later influx of Europeans. As a result of deforestation and climate changes, sedimentation led to the additional formation of lakes and peat bogs (Lowe 2010).

Main soil types within the Hamilton Basin include a variety of parent materials and how they are situated in the landscape (Figure 6). Low rolling hills include Hamilton, Kainui, and Ohaupo series, characterized by weathered tephra and clay-rich profiles. Plains soils such as Horotiu, Bruntwood, and Te Kowhai series exhibit varying drainage and clay types, influenced by alluvial deposits. Low terrace soils, primarily Waikato series, are weakly developed due to their young age from recent flood deposits. Gully soils include Tamahana and Kirikiriroa series, formed from recent sediment and colluvium. Horotiu soil is classified as Typic Orthic Allophanic Soils, indicating its tephric and mixed rhyolitic composition. Te Kowhai soil profile presents a contrasting structure and composition compared to Horotiu soil. It is classified as Acidic Orthic Gley Soils, reflecting its tephric and rhyolitic nature. As mentioned above there are also large areas of organic soils from former peat swamps which have now been drained in the modern era (Lowe 2010).

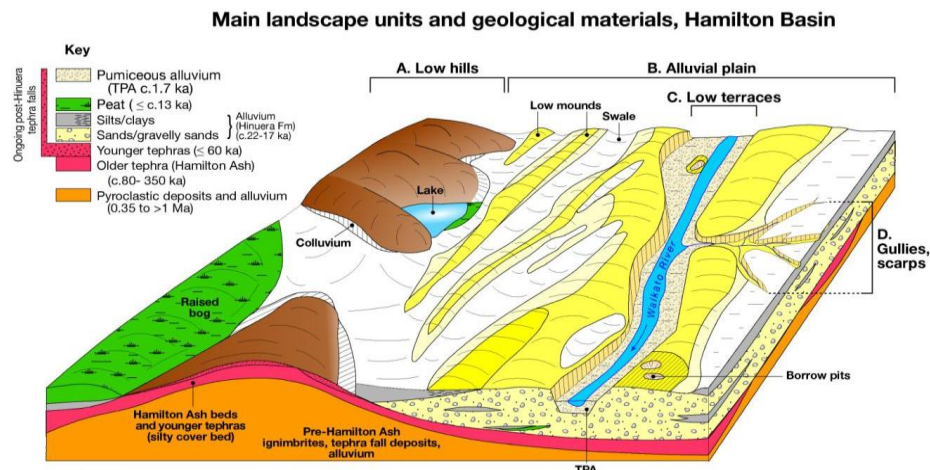


Figure 4. Block diagram showing the principal landform units of the Hamilton Basin (Lowe 2010:4).

Local environment

The Site area is located within the Hamilton Basin. This landscape has been dominated by the meandering Waikato River, which now entrenched in its current alignment, flows approximately 2.5 kilometres northeast of the Site. Landform comprises flat lowland (former swamp) areas with smaller paleochannels and levees and antecedent hills to the northern and eastern boundaries of the Site. Soil classifications/orders within the Site are identified in soil maps from 'S-map online' as: on flatter lower elevations – Organic – (Green), and on the higher hill elevations, Allophanic – porous with a low density structure (Yellow), Granular – clayey soils from weathering of volcanic rocks or ash (Dark grey), Brown (moderately free draining soils with clay (Brown) and Gley – strongly affected by waterlogging (Light grey). Drainage classes are identified as Kaipaki (1 – very poorly drained, Yellow), Hamilton (4 – moderately well drained, Brown) and Rukuhia (1 – very poorly drained, Pink). None of these soils are defined as free draining soils and as such have a much lower potential for archaeological sites, especially horticulture (Figures 5–6).

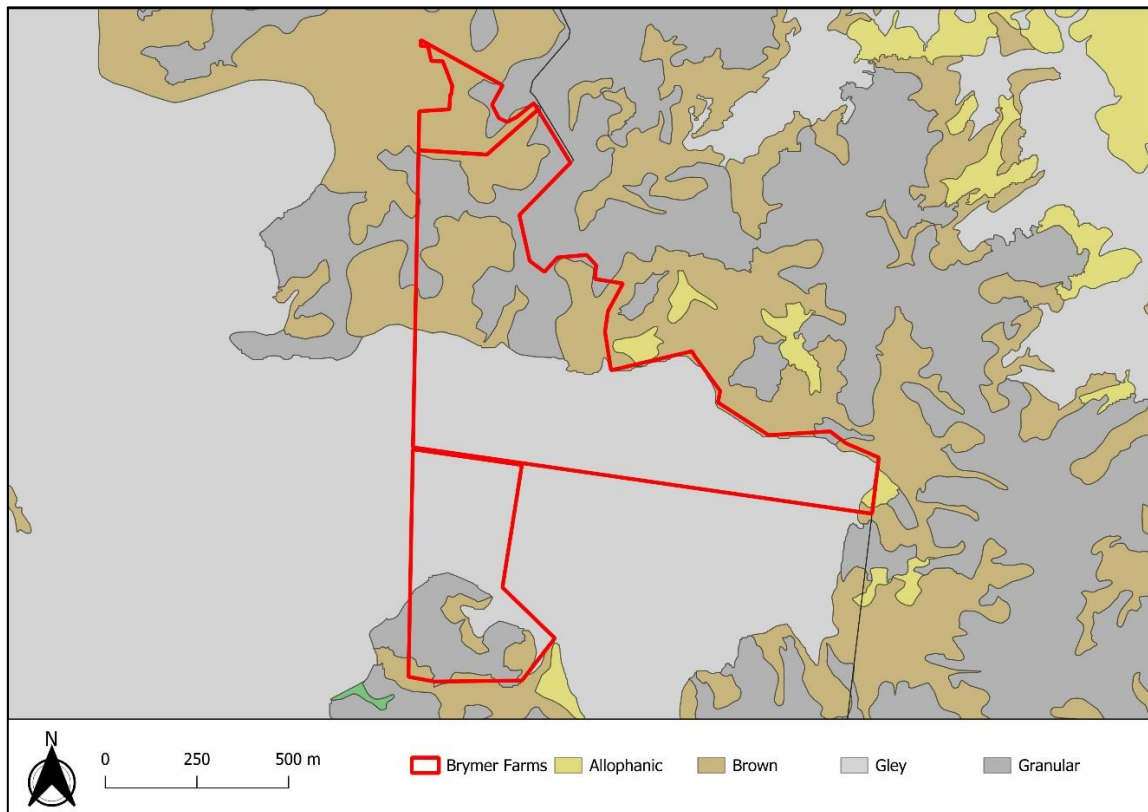


Figure 5. Soil classification (LRIS, S-Map online).

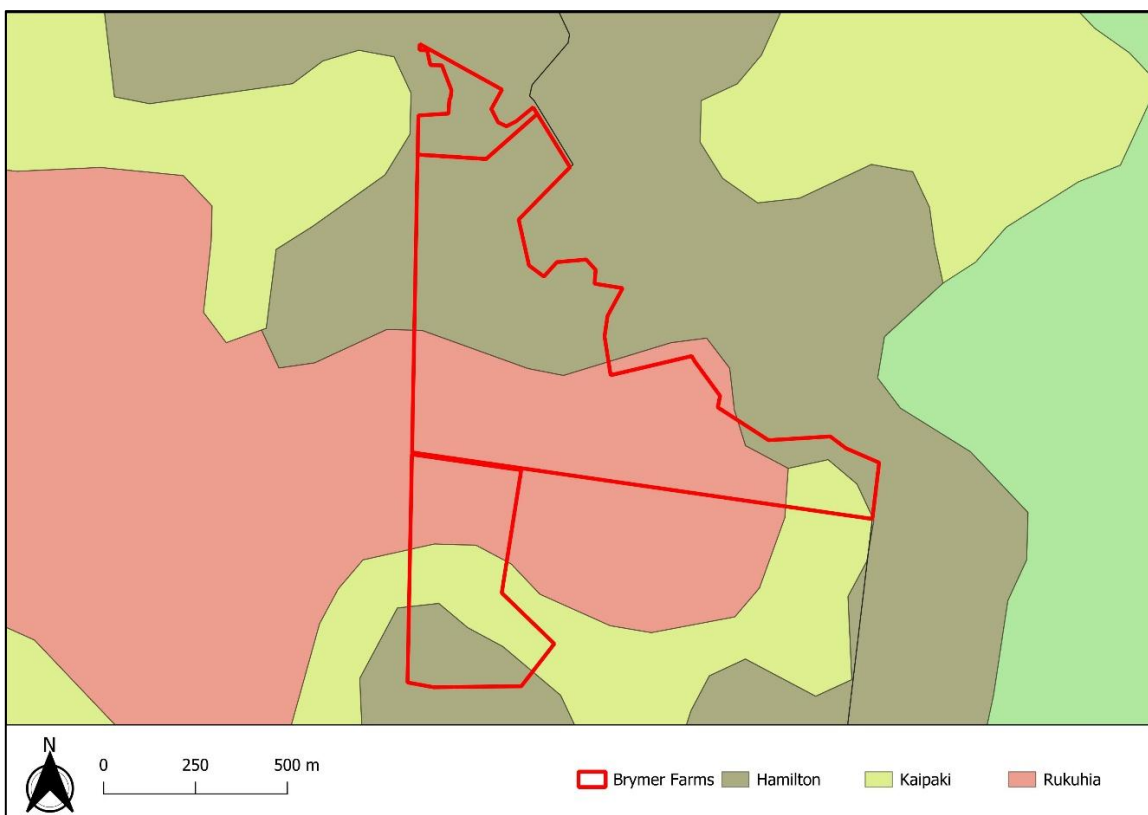


Figure 6. Soil drainage (LRIS, S-Map Online).

Previously recorded archaeology

Prior to this assessment there were no recorded archaeological sites within the Site. The closest recorded archaeological sites were located between 2.5–3 kilometres from the Site: S14/498 – Frankton Junction Railway Station, S14/69 – Pā, S14/45 – Pā and S14/486 - Pā (Figure 7).

Further afield an extensive pre-European Māori horticultural landscape along the Waikato River corridor has been identified through soil surveys from the late 1930s onwards (Grange 1939). This combined with more modern research by Gumbley and Hutchinson in 2012–3 have identified multiple archaeological sites in the landscape. Sites were confirmed using aerial images from the late 1930s and early 1940s due to the presence of borrow pits (Gumbley & Hutchinson 2013). Neither the soil maps nor work by Gumbley and Hutchinson have identified any horticultural soils or archaeological sites relating to this landscape within or directly adjacent the Site.

The New Zealand Heritage List/Rārangī Kōrero

No heritage sites are identified on the list within or in the immediate vicinity of the Site.

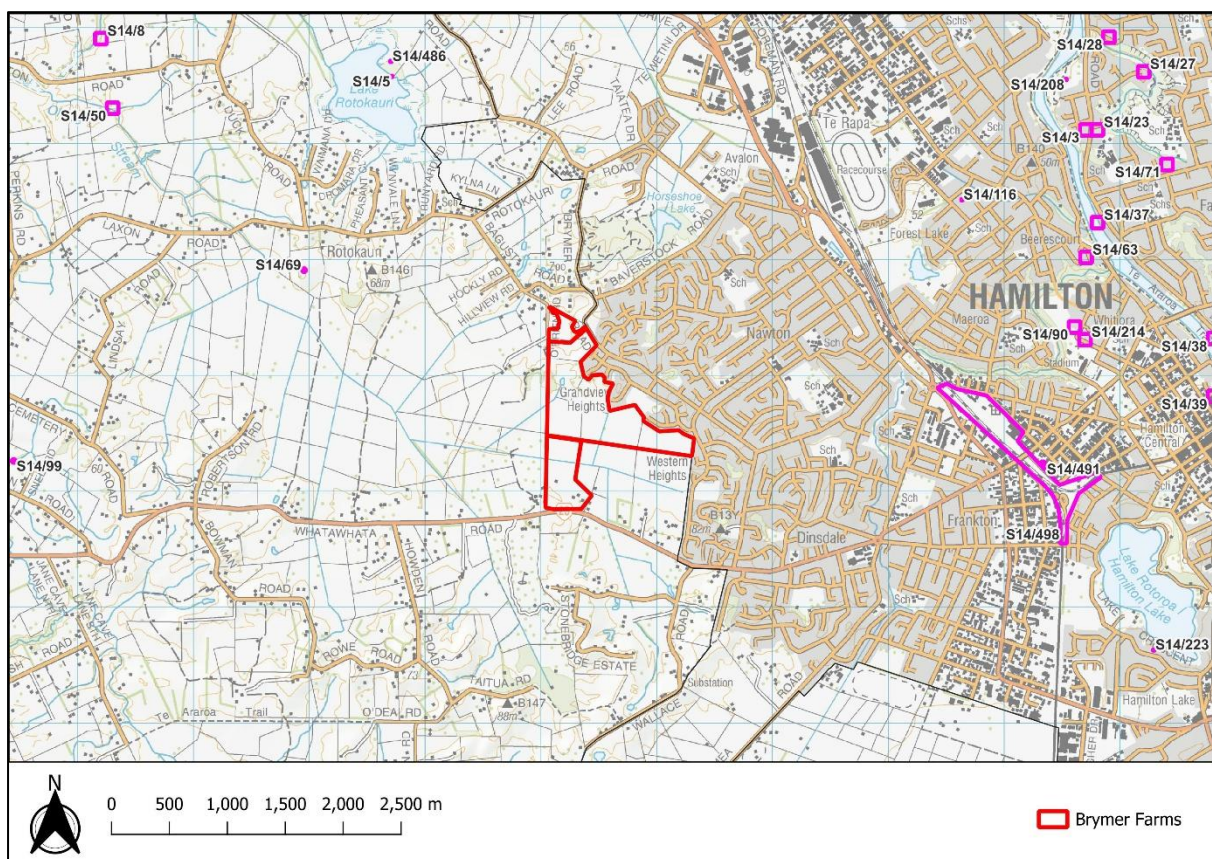


Figure 7. Previously recorded archaeological sites in the general vicinity of the Site, taken from the NZAA database ArchSite in November 2025 (ArchSite).

Historical Background

Māori

Today the Waikato is a much-altered landscape from what it once was. Its swamps have been drained and vegetation cleared to create pasture and exotic forests. However, features of the landscape, especially those used by Māori for identity remain, for example the sentinel mountains – Taupiri, Karioi, Pirongia, Kakepuku, Maungatautari, Maungakawa, Te Tāpui and Te Aroha, and the Waikato River. Major rivers in the Waikato were initially used for transport and the inland diaspora of Māori as well as European trade and transport. These rivers and their tributaries flow through some of the most productive land in New Zealand.

Waikato is the ancestral region of tribes descended from people who came to New Zealand on the *Tainui* waka. The waka, commanded by Hoturoa, explored both coasts of the central North Island before making its final landfall at Kāwhia Harbour, settling there first there first, before spreading to the north, east and south. In later generations, Tainui ancestors founded tribes which spread throughout and beyond the Waikato region. For the Tainui tribes, the harbours, rivers and swamps of Waikato provided food and other resources, and its mountains and ranges were strongholds. Settlements sprang up throughout the region, usually on hilltops or beside lakes. Harbours were traditional centres of population, as were mountains such as Maungatautari. As waka traffic increased along the rivers during the 1800s, settlements in these areas increased (Swarbrick 2025).

After the initial occupation of coastal New Zealand, the Māori diaspora led inland towards the Middle Waikato Basin. To access the Waikato, navigable waterways and accessible land were used to locate suitable areas for horticulture and occupation; evidenced by the plethora of recorded archaeological sites along the Waikato River, its tributaries and gully systems. Recorded archaeological sites within this landscape are a combination of defensive structures; established at higher elevations to provide a watershed of the area. Pā are also closely linked with surrounding settlements and gardens, utilising the fertile soils adjacent to the river for the cultivation of kumara and other plant species (Gainsford 2025, O'Hagan 2025).

Following the signing of the Treaty of Waitangi in 1840, there was increased pressure on Māori by Europeans to sell their land. As a reaction to increasing European pressure some chiefs decided to unite and stave off the threat to both land, customs and mana. The Government responded by planning an invasion into the Waikato, leading to the wars of the 1860s. Governor George Grey had accused the Waikato chiefs of disloyalty. And following this he announced his intention to send troops into Waikato on 11 July 1863. A result of the Waikato Wars was that most Māori owned land was confiscated under the NZ Settlements Act (NZSA) 1863 (Swarbrick 2025).

European

Following the first European settlers (traders and missionaries) more permanent Europeans were soldiers stationed to guard militia townships, for example, Cambridge. As the war was being fought, the government planned to confiscate Waikato lands and establish defended townships to deter Māori from reoccupying their territory. Settlers earmarked for these areas were part of the Waikato militia, consisting of four regiments recruited from Otago and Australia (1863) with the promise of land grants post-service. Following the wars and

disestablishment of the militia (1865–66) and formation of the armed constabulary (1867) to guard the confiscation line, many men were released from service. They were granted land in the region that had been confiscated from Māori under the NZSA 1863. However, this land was usually allotted into 50-acre blocks drawn up on survey plans and mostly turned out to be less than ideal for agriculture, being inaccessible and swampy. Lots of these allotments were either left, on sold or they were cleared and drained for use. Following the close of the war around circa mid-1864 new towns were surveyed at Alexandra (now Pirongia), Cambridge and the former Māori villages of Kihikihi and Kirikiriroa (renamed Hamilton). Also, former military outposts were also settled at Te Awamutu, Ōhaupō, Whatawhata, Huntly and Ngāruawāhia.

During the early influx of European settlers Māori continued as they had since their arrival into the Waikato. Initially the Waikato was not considered favourable by Europeans for farming or cultivation as it was deemed difficult, too swampy and quite inaccessible. Little land changed hands during this period due to its 'unfavourable' nature. However, Māori with newly acquired agricultural skills, tools and modern farming techniques and crop species (introduced often by Missionaries) changed Europeans perceptions. Māori farming and exports became very successful (Phillips 2014). Most likely this success prompted, to a degree, the British invasion of the Waikato (1863) by the Crown. Land acquired was used for European settlers and allotted to militiamen. Following the land wars large tracts of Māori owned land were confiscated and allocated to militiamen. Later this land was often sold by the men since they too thought it too difficult to clear and cultivate. This is the case for the site and the surrounding area around Cambridge and Hamilton whereby land was confiscated to be allotted to militiamen men following service (Gainsford 2025, O'Hagan 2025).

Local history

Prior to the arrival of European settlers to the Waikato River was the major transport route for initial exploration, settlement and burgeoning trade (through the 1850s). These canoes were later replaced by steamers during the British expansion into the region, through the Waikato Wars. Part of this British expansion included the 3rd and 4th Waikato Militia Regiments. As with initial settlement the river was the only major route from Auckland into the Waikato. The first settlers were members of the disestablished 4th Waikato Regiment who settled around 1864–1866. They received a 1-acre town section and were also entered into the ballot for one fifty-acre section or more according to rank/station so that they could commence farming the outlying Hamilton district. The surrounding area west of Hamilton including swamps such as Rukuhia were being actively drained throughout the latter part of the 1800s. After the confiscation of land and militia selling their plots, landowners such as James Willaimson amalgamated large tracts of land with the intent of transforming the swamy unusable land into usable pasture through drainage schemes. This was made easier following the construction of the fist section of the Main Trunk Line in the 1870s. Within and surrounding the Site were likely to be multiple drainage ditches that were used to create road corridors and arable land for farming. This expanded Hamilton by creating rural outlying areas which transformed the landscape and farming in New Zealand during the 1870s–80s (Swarbrick 2025).

Historic newspapers

A review of Papers Past was undertaken to determine whether there is evidence of drainage reserves such as S14/509 being constructed in the area. Within and adjacent the Site there are multiple references to drainage works being undertaken during the 1870s–80s. This is likely a result of public infrastructure works programmes and land modifications by European settlers to covert land into useable pasture.

Excerpt from the Waikato Times (1886) describing a drainage reserve constructed within historic sections shown on SO3037 (1883) within and adjacent the Site (Figure 11). This may be associated with the road construction although it is not completely clear.

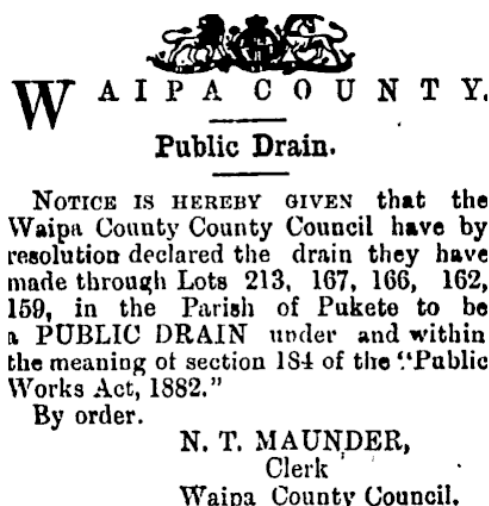


Figure 8. Excerpt from the Waikato Times 1889.

Excerpts from the Waikato Times (1889) commissioning tenders for 'making a drain' and then completing it near Stokes Bush. The stated length of about 130 chains matches the length of the reserve (S14/509) shown on survey plan SO3037 (Figure 11). The approximated location for Stokes Bush adjacent the Site is shown on Newell's sketch plan (1874) in Figure 12.



Figure 9. Excerpts from the Waikato Times 1889.

Historic plans and aerals

Historic plans

A review of historic survey plans in Quickmap, and historic maps identified three historic plans/maps of direct relevance to the Site, SO350 (1865), SO3037 (1883) and a sketch map by Captain Newell. These plans/sketches show various sites and features of interest within and around the Site including roads used to travel between European townships.

Results of the review identify Militia Allotments ('Farms'), farmstead/homestead buildings, vegetation and roads in the general landscape. However, it appears that most of the Site was not divided into militia farms. In the 1865 plan (SO350) only the northern area of the Site is shown as being allotted as 14, 15 & 103. There is also potentially a small paper road within Lot 103. In a later plan from 1883 (SO3037) Lot 103 and the road do not reappear. It may be that this area was not settled, was immediately on sold and the road never formed (no primary parcel exists for it). It is also likely that the road was adjusted to consider topography and was rerouted around the gully. The landscape depicted in the plans shows the flat low-lying land within the Site is shown as Harakeke (flax) swamp and areas to the north and south as low-lying antecedent hills. Due to the swampy nature of the Site a 'Drainage Reserve' (25 links wide ~ 5 metres) is shown constructed through its middle; constructed sometime between 1865 and 1883. It drains out into the north-south running Ohote Stream which appears to have also been modified into a drain that empties into the Waipa River (Figures 10–11).

The sketch by Newell from 1874 also shows the approximate area around the Site. There are no indications of occupation or land use in his sketch within the Site but there is an area of bush called 'Stokes Bush' bordering it to the east. This bush covers areas located on the lower hills and not the swampy lowland (Figure 12).



Figure 10. Excerpt from SO350 (1865), Lot 103 and paper road shown by blue ellipse (Quickmap).

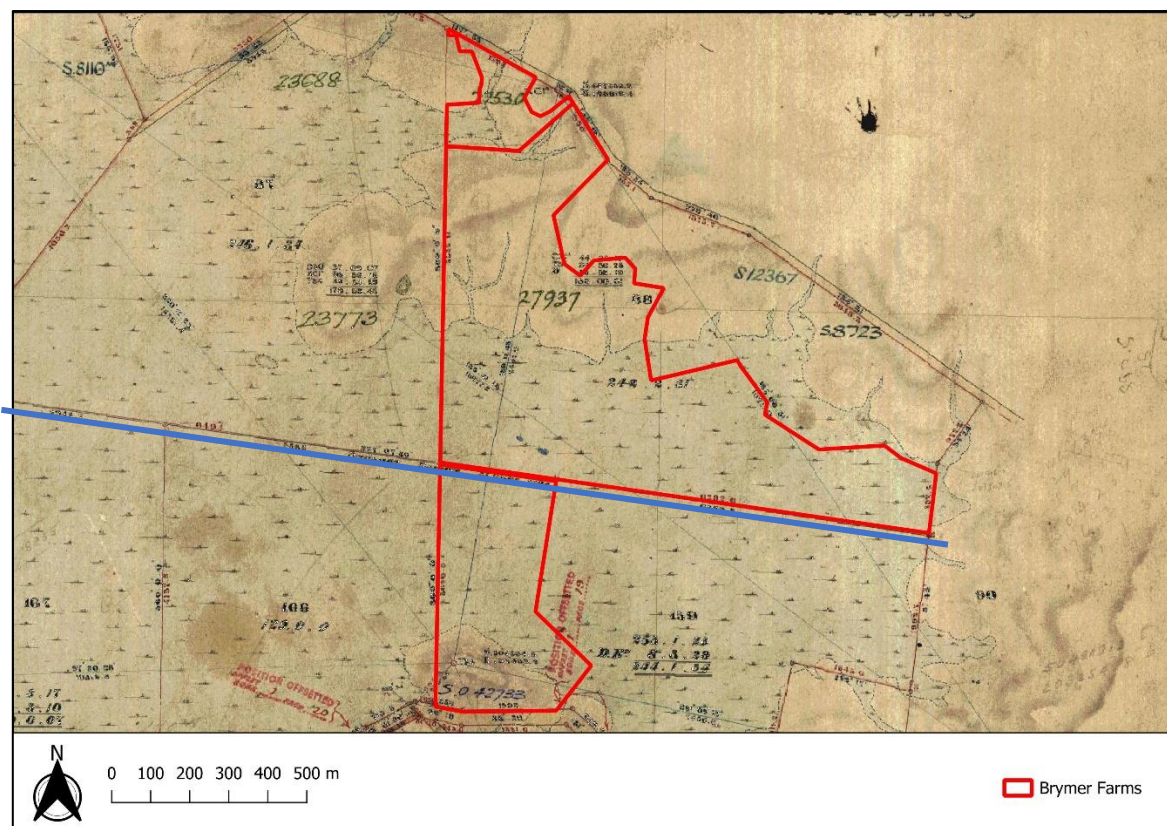


Figure 11. Excerpt from SO3037 (1883). The drainage reserve is highlighted by the blue line (Quickmap).

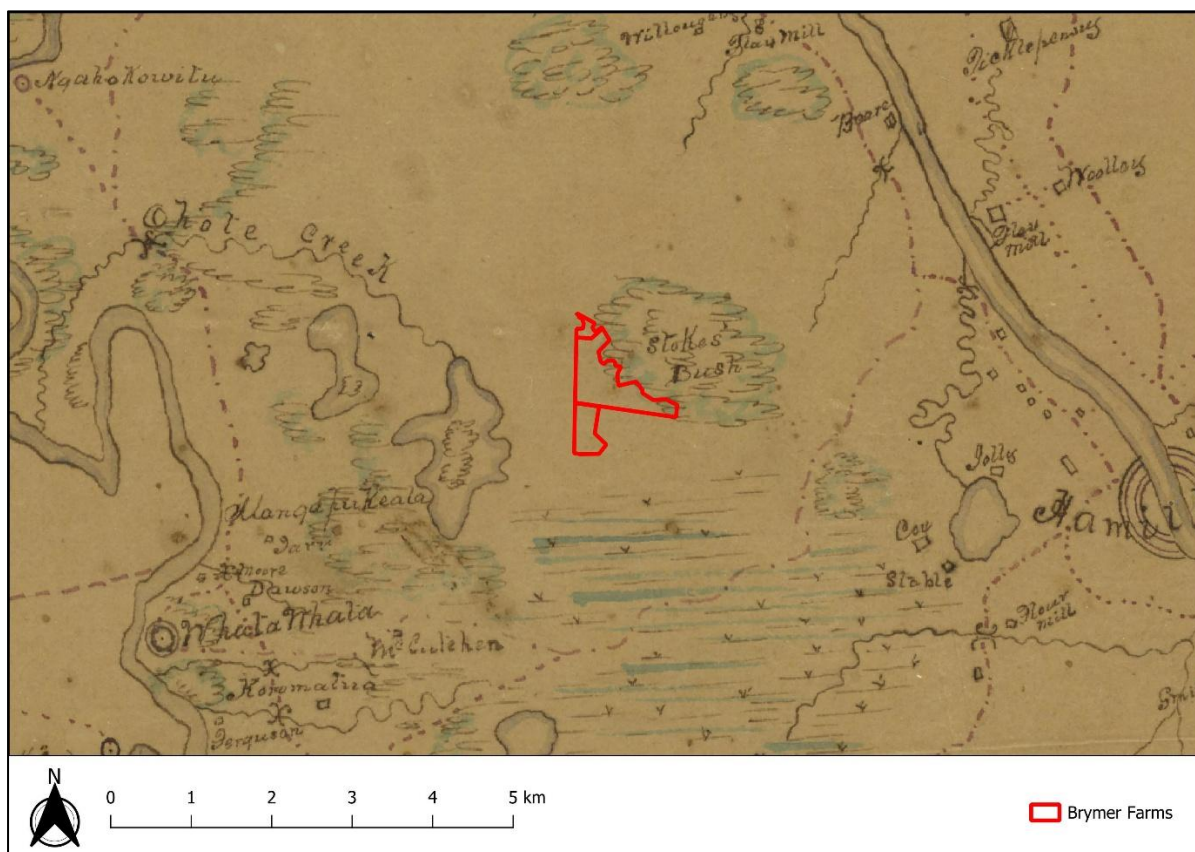


Figure 12. Figure 6. Part of Newall's Sketch Map (Reproduction), 1874. Thought to have been prepared by the military leader Captain Stuart Newall the map shows various sites and features of interest. The map is a sketch and therefore it is not possible to define the exact area for the proposed development, but it has been approximated by the red ellipse through georectification which is approximate (1973/38/4 – Newall's Map: Collection of Te Whare Taonga o Waikato Museum & Gallery).

Historic aerals

Early aerial imagery was reviewed on the website Retrolens. The earliest available images on Retrolens are from 1943 and extend through to the late 1990s. Aerial images visualise historic land use for the Site, which has primarily been pastoral grazing and crop production; that has not significantly altered from the 1940s through to modern aerals. The historic drainage reserve through the middle of the Site is visible in all images. Within the Site there has also been construction of outhouses, tree planting, race maintenance, additional drainage ditches and fences etc. Modern aerals post-1990s show that the lower lying areas have been used for crop production. None of the images studied identified any archaeological features aside from the Drainage Reserve (Figures 12–13).

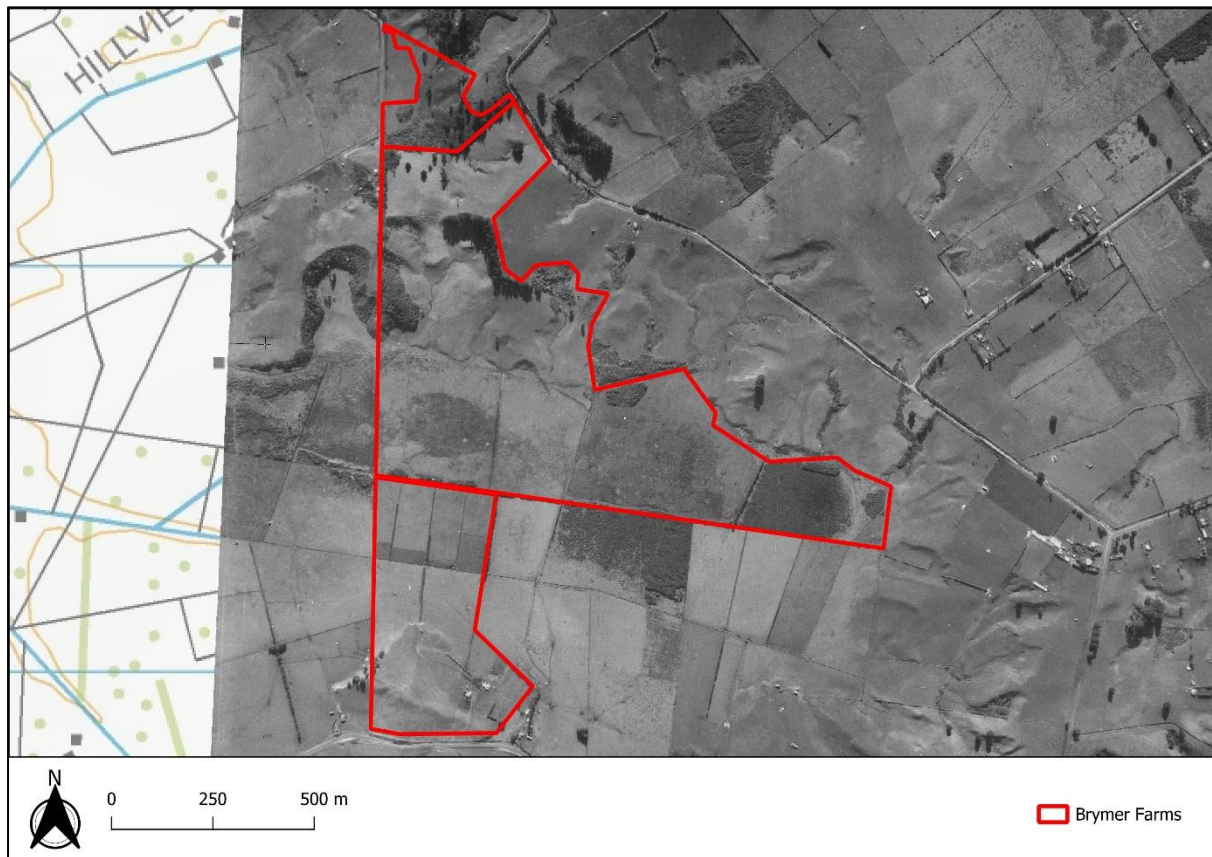


Figure 13. Excerpt from earliest available aerial photography from 1943 (SN266-830/34) (Source: Retrolens).



Figure 14. Excerpt from aerial photography from 1995 (SN9401-B/10) (Source: Retrolens).

LiDAR imagery

Height elevation data shown below provides a model for the landscape and subject area during the period 2008–2023. LiDAR data uses laser points taken from an aircraft to create a height elevation model for the landscape. It can also remove extraneous object such as houses and trees. The only evidence for archaeology within the Site based on available LiDAR data is the Drainage Reserve shown first on SO3037 (Figures 15–16).

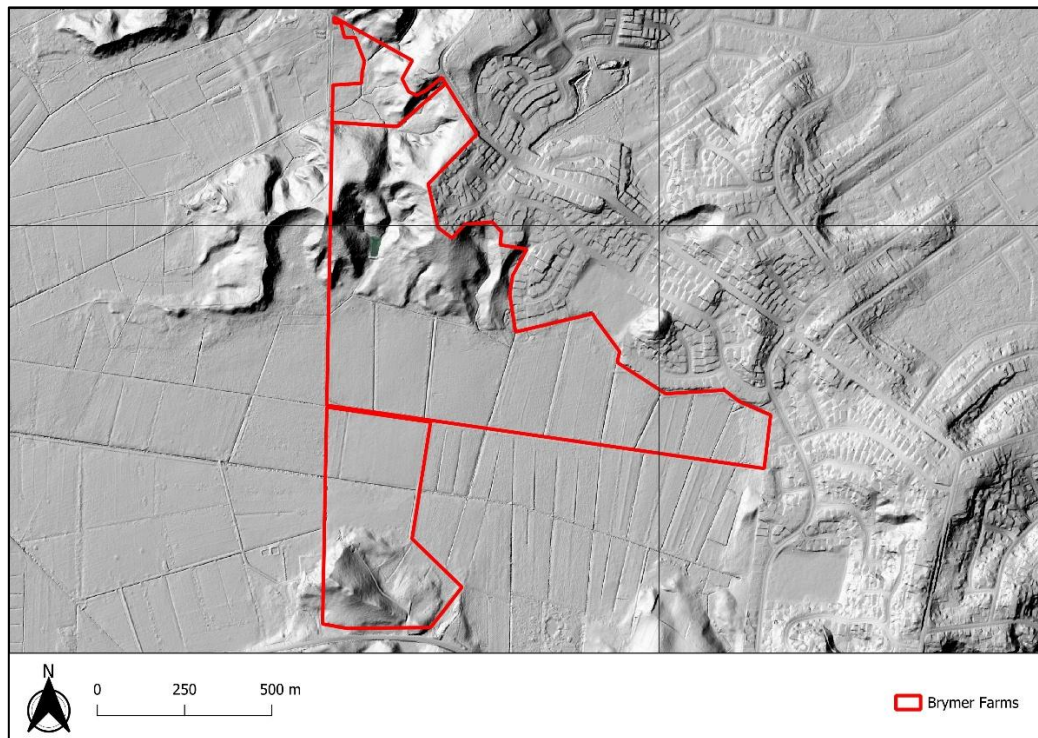


Figure 15. LiDAR excerpt from 2008 (Source: LINZ).

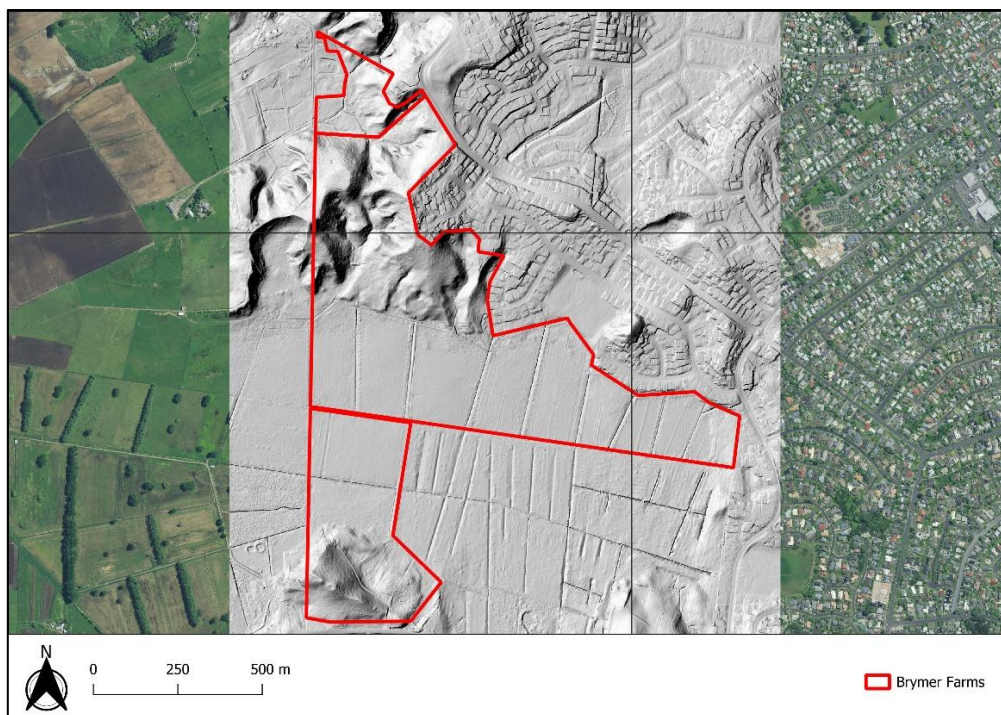


Figure 16. Lidar derived hillshade model from DEM data taken in 2023 that shows the Site as mostly flat with some hills to the north and south (Source: LINZ).

Site visit

On the 17th November 2025 a site visit was undertaken at the request of the client to clarify the potential for archaeology within the Site, with special reference to the field drain - 'Drainage Reserve' identified in historic plans. The site visit looked at the field drain currently in use but also included a pedestrian walk over of the hill areas to the north and south of the Site (Figures 17–21).

Currently the historic drain is still in use. It appears to follow the same alignment as identified in historic plans and aerial images. It is approximately 1 metre wide with the depth approximately 1–1.5 metres. The farm race crosses the feature via a concrete slab crossing. Land on either side of the drain (north and south) is being used for crop production and was ploughed. The hills at either end are being used for pastoral grazing/dairy. Due to the nature of the farm, the historic field drain has likely to have been maintained to some degree.



Figure 17. Historic Drainage Reserve, represented currently as a field drain. Drone image is taken facing east from the race.



Figure 18. Historic Drainage Reserve, represented currently as a field drain. Drone image is taken facing west from the race.



Figure 19. Image facing west of current drain form and function.



Figure 20. Drone image showing northern hill area.



Figure 21. Drone image showing the southern smaller hill.

Assessment of Archaeological Values

The archaeological record for the wider landscape and general pattern of settlement prior to European farming, is, settlement and gardening within c.1–2km of the Waikato River on fertile soils and along gully systems. Areas further from the river with extensive tracts of swamp and peat lakes would have been less attractive for long-term settlement and most likely would have served as resource areas rather than areas of permanent settlement (Foster 1999). Post-Waikato Wars land was confiscated and given by ballot to the British military soldiers. After struggling to make these farms viable, and with minimal support from the government, these plots were often abandoned or on-sold to land speculators. Following sale, new landholders began to modify the landscape through tree felling, swamp drainage, and bush clearance.

A single feature of historical interest was identified within the Site; archaeological site S14/509, a late 19th Century drain shown on historic plans and aerial images. It is not currently known if this feature has any significant archaeological values. It should, however, be considered rare due to the lack of similar sites being recorded in the archaeological database. A similar site (S14/334) was investigated in 2022 by S. Keith (2022) as part of the Chedworth Development but did not provide any significant information.

S14/509 borders and partially crosses into land allotted to the Waikato Militia following its disestablishment in 1865–66. It is identifiable as a pre-1900 drainage reserve feature though the middle of the Site in a historic survey plan. Based this plan it was likely constructed sometime after the plan was surveyed, likely during the 1880s. In fact, this period was a transitional phase in the landscape whereby large tracts of land around Hamilton were being transformed. Currently S14/509 is still used for drainage and is visible in modern aerials. Also, a single Militia lot (103) is shown in historical plans with a paper road (SO350). It, however, appears that this road was potentially planned but never surveyed or constructed since it does not appear in later plans nor does it have a modern primary parcel associated with it. The topography combined with the current road alignment (around the gully) differs significantly from the plans.

The study area has low potential for pre-European archaeological sites or artefacts. Extensive remains are unlikely because this part of the Waikato Basin was not favourable for long-term occupation, and no recorded sites of this nature have been identified within the Site.

Due to the presence of recorded archaeological feature S14/509, there is potential for information to be gained relating to the early European settlement of Hamilton including how the landscape was modified for use as an open farmed landscape. It should also be noted that, due to modern farming practices and machinery the landscape has significantly changed since the late 1800s through modern farming and ploughing. It is also possible that S14/509 may be substantially modified through its ongoing use and maintenance.

Heritage New Zealand criteria

Table 1. Assessment of recorded archaeological sites against the HNZ criteria.

Value	S14/509
<i>Condition</i>	S14/509 is represented as a drainage reserve on historic plans and is visible as a ditch in historic aerals and LiDAR imagery. Its extant remains are currently unknown, and it is not known whether modern modification has affected the original fabric of the site. Subsurface constructional elements/layers may be present below surface.
<i>Rarity/uniqueness</i>	These sites are common agricultural features relating to early European settlement and land use of the mid to late 19 th century. They often occur in swampy areas which were drained by European settlers for farming following clearance. Even if they were once common, any evidence of early European occupation should be considered rare in this landscape since very few sites of this nature have been identified and recorded as archaeological sites within the Waikato.
<i>Information potential</i>	Investigation of S14/509 can inform on how the wider Hamilton area and Waikato was settled by Europeans during the latter 1800s. Information around how this progressed within the region, the modes employed and constructional differences and advancements are important to understanding early settlement patterns and advancements which allowed an ever-increasing area to be occupied and farmed. It is also possible that dating material (potentially artefacts) may be identified which can potentially place the site within the region's developmental timeline. Sites of this nature should be further investigated within the wider Waikato to expand knowledge around early European settlement including comparisons between technique, initial construction phases, timelines and use/reuse of features over time.
<i>Amenity value</i>	Due to the location of S15/409, it currently has a minimal amenity value. Modification of this site through bulk earthworks will reduce this further.
<i>Cultural associations</i>	This is a matter for Tangata Whenua.

Assessments of effects on archaeological values

Due to the nature of the proposed development/works within the Site, remains of S14/509 will likely be highly modified or destroyed by the proposed development.

Effects to S14/509 are likely to occur during modification of the existing drain alignment into a stormwater reserve to manage increased runoff from the Site. Effects can therefore include the removal of topsoil and subsoil, heavy plant and machinery movements and operations, and roading across the drain alignment including culverting and stabilisation works. These will have a significant negative impact on the values of S14/509 by modifying/destroying it within the Site.

Conclusions and recommendations

The Site has recorded archaeology in the form of a pre-1900 Drainage Reserve associated with the early European settlement and land use of Hamilton (S14/509). Since there is recorded archaeology within the Site that will be affected an archaeological authority must be applied for to modify/destroy an archaeological site.

Recommendations:

1. An application must be made to Heritage New Zealand for an Archaeological Authority to modify/destroy an archaeological site.
 - a. That modification/destruction of any archaeology be mitigated through archaeological fieldwork, sampling, recording and reporting. Mitigation should be controlled by an Archaeological Site Management Plan (ASMP). This document identifies the appropriate controls, protocols and procedures as well as how any archaeological monitoring/investigation will take place.
2. Consultation be undertaken with Mana Whenua at an early stage of the process. The results of this assessment should be discussed in detail so that Mana Whenua are aware of this report and its results and have opportunity to comment on the findings, the project and discuss any Authority application.

References & Bibliography

Bruce, J.G. 1978. *Soils of part Raglan County, South Auckland*. New Zealand Soil Bureau Bulletin 41.

Bruce, J.G. 1979. *Soils of Hamilton City, North Island, New Zealand*. New Zealand Soil Survey Report 31.

Foster, R. 1999. *State Highway 1 Four-Laning Hamilton Bypass Lake Road to Bollard Road Archaeological Assessment*. Unpublished report prepared for Opus International Consultants Ltd on behalf of Transit New Zealand.

Gumbley, W. & Hutchinson, M. 2013. *Pre-European Māori garden sites in Waipa District: an assessment of the state of the resource*. Unpublished report. W. Gumbley Ltd. Hamilton.

Keith, S. 2015. *Archaeological assessment: prepared for Tainui Group Holdings Ltd – Ruakura Land Development Plan*. Unpublished report. OPUS International Consultants Ltd.

Keith, S. 2022. 2015/1135 – Chedworth Properties Ltd, Ruakura. Letter to HNZ.

Lowe D.J. 2010 (updated 2021). *Introduction to the landscapes and soils of the Hamilton Basin*. In: D.J. Lowe, V.E. Neall, M. Hedley, B. Clothier & A. Mackay (Eds.). *Guidebook for pre-conference North Island New Zealand "Volcanoes to ocean" 26th-30th July 2010, 19th World Congress of Soil Science: soil solutions for a changing world: Brisbane Australia 1-6 August 2010, 1.14–1.61*. Palmerston North, New Zealand: New Zealand Society of Soil Science.

McLeod, M. 1984. *Soils of the Waikato lowlands*. Report HN 11. Soil bureau district office HN 11. Department of Scientific and Industrial Research New Zealand.

O'Hagan, A. 2025. *Archaeological assessment: private plan change request Te Rapa*. Prepared for Fonterra Limited. Sian Keith Archaeology, Hamilton. Unpublished report.

Swarbrick, N. Waikato Region. < <https://teara.govt.nz/en/waikato-region/print>>. Accessed November 2025.

Newspapers (papers past).

Waikato Times. 1886. *Advertisements Column 3*, Vol. XXVI, Issue 2175, 17 June 1886, p. 3.

Waikato Times. 1889. *Advertisements Column 2*, Vol. XXXII, Issue 2594, 26 February 1889, p. 3.

Waikato Times. 1889. Vol. XXXIII, Issue 2704, 9 November 1889, p. 3.