



Appendix L Archaeological Appraisal

Fast-Track Approvals Act 2024 Substantive Application

Hinuera Solar Farm

Harmony Energy NZ #6 Limited

SLR Project No.: 880.016894.00001

19 August 2026

Jarrold Dixon
Senior Planner
4Sight Consulting
PO Box 911 310,
Auckland 1142

Via email: [REDACTED]

21st May 2024



SKA

Sian Keith Archaeology Ltd
Claudelands
Hamilton 3214
021 1411 802
sian@siankeitharchaeology.com
www.siankeitharchaeology.com

Re: Archaeological Appraisal, Hinuera Solar Farm

Purpose

This is an archaeological appraisal of a proposal to install a new solar farm on a block of land at the SW corner of the SH27 and SH29 intersection (*Figure 1*). No formal plans have been prepared to date, however an outline of the extent of the solar farm has been provided (*Figure 2*) and the proposal will generally involve the following:

- The installation of solar panels modules across a 150ha property.
- Ancillary infrastructure will include transformers, underground cabling, container like structures to house electrical equipment, infrared cameras, deer type fencing for security and internal access tracks.
- The solar panel modules will be installed on mounting structures, pole driven or screwed into the ground.
- Earthworks will generally be limited to formation of access tracks, trenching for cabling and building platforms for larger equipment.

Scope

The archaeological assessment for this proposal has been divided into two components. This appraisal is the initial component and will provide the following:

- Detail available archaeological information including New Zealand Archaeological Association (NZAA) Site Recording Scheme ArchSite.
- The results of a field survey.
- An assessment of any known and potential archaeological risks and constraints within the subject site.
- Confirm any high value and high risk areas for archaeology which will require avoidance at the design stage.
- Provide recommendations in line with statutory guidelines, specifically in regard to any requirement to obtain an archaeological authority.

Should an archaeological risk be identified, a full assessment of archaeological effects (AAE) will be recommended to support an authority application. This would be the second component of archaeological work for this proposal.

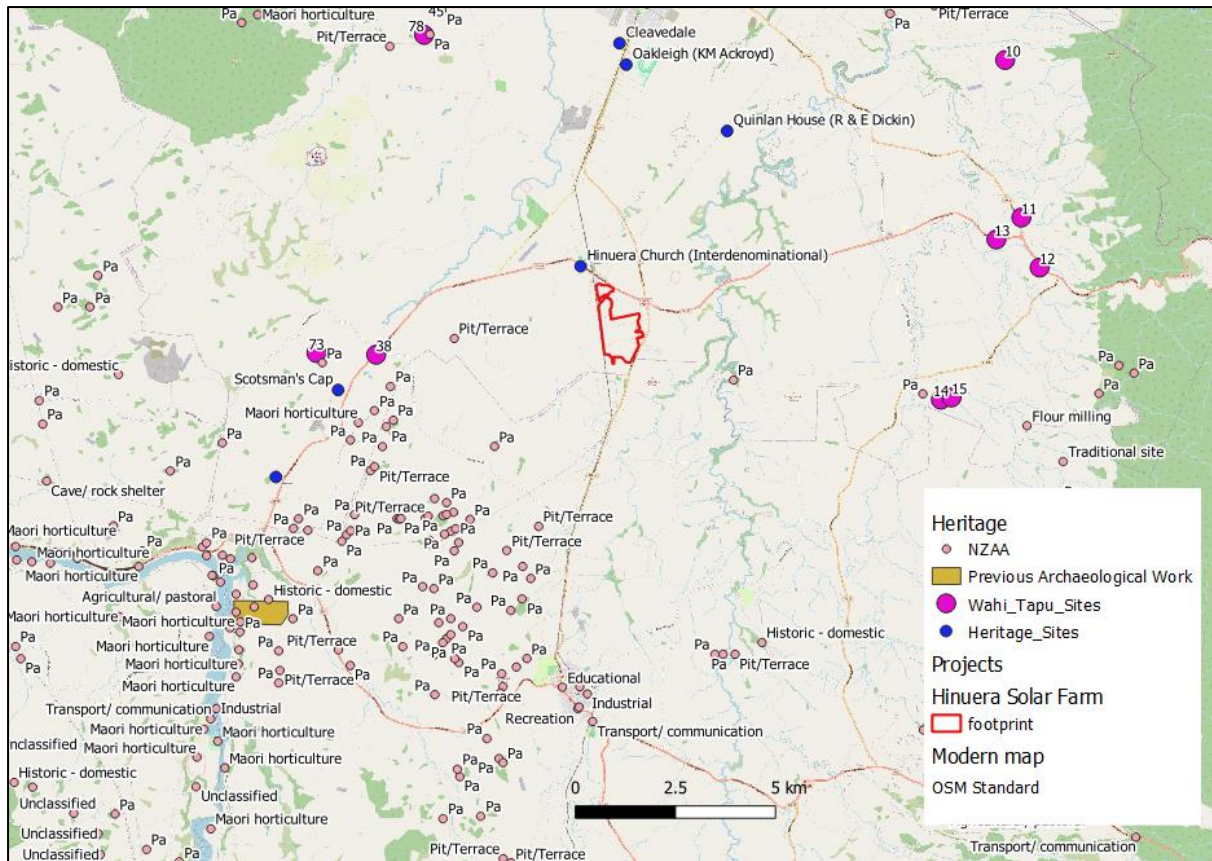


Figure 1: Location map set in archaeological landscape.

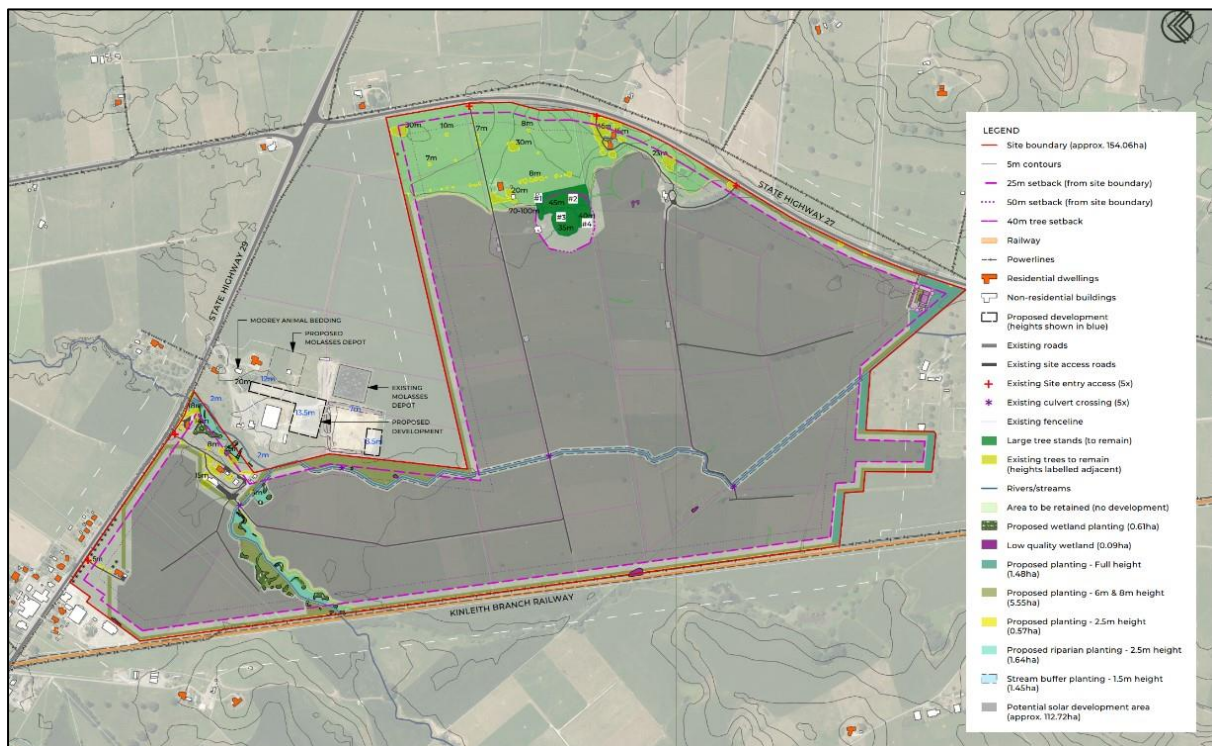


Figure 2: Current site plans

Māori settlement

The Waikato River was a key focus for pre-European Māori settlement, providing a navigable accessway into the Waikato from the coast, beneficial soils for horticulture, and a source of freshwater food. Many of the known archaeological sites are focused within 2km of the river and its main tributaries (*Figure 1* and *Figure 3*). The archaeological landscape is characterised as representing a subsistence economy based primarily on horticultural activity focused on the production of kūmara. Kūmara were grown on specific soils chosen deliberately based on the qualities of the parent soil and the access to underlying sands and gravels and fresh water. Quarries, which are known as ‘borrow pits’ were dug to access the underlying sands and gravels which were then incorporated into the upper soil surface creating distinctive garden soils. Such sites are highly visible in the field, and there are extensive traditional gardens recorded adjacent to the Waikato River and its tributaries extending over much of the land from Meremere to Arapuni. The subject site is however located over 11km to the north-east of the river and this gardening landscape, and no such archaeological sites have been identified in proximity to the study area.

There is a very dense cluster of recorded pā sites (fortified settlements) located c. 4km to the south-west of the subject site. This cluster extends from Piarere to the south of Tirau, and continues to the river. These pā are located in elevated positions, with moderate to high natural relief. Kay Burridge, who undertook her Master’s thesis in this area, considered that the accessibility of the waterways made the Tirau district a strategic location, stating that it was possible to take canoes right up to the base of some pā close to Tirau up until the 1920s (Burrige 1995: 6).

Burrige considered that, as Māori settled in this district were some considerable distance from the coast and its resources, they would have relied on the streams and rivers for both subsistence and as a mode of communication and access in pre-contact times. Occupation would have occurred close to resources like forest, fernland and scrub, swamps and fresh water sources. Swamp and wetland areas would have provided eels, while native trout, mussels, crayfish and whitebait would have been present in the freshwater streams. Small pockets of forest were scattered across the landscape in the small gullies that were produced by the young streams. The forests harboured bird life and a variety of berries as staple food resources. The vegetation present during Māori occupation was primarily fernland, with the fern root likely also being a main part of the diet (Burrige 1995).

From the 1820s European goods were entering the Waikato region in the form of muskets, crops, and domesticated animals. Māori became proficient and productive growers, selling their surplus to the Auckland market, transporting goods via canoes along the Waipā and Waikato Rivers (Stowers and Field 2014; O'Malley 2016).

In the Waikato Wars of the early 1860s Ngāti Raukawa leant their support to the Māori King. After the battle at Orakau they retreated south of the Confiscation (Aukati) Line, into the King Country (Burrige 1995:23). Māori occupation in the district altered greatly with arrival of European settlers in townships, until eventually most settlements were abandoned by the 1870s (ibid: 101).

European settlement

In the late 1860s William Thorne Buckland, a prominent Auckland landowner, began to acquire the present districts of Karapiro, Whitehall, Taotaoroa and Fencourt, which came to be known as ‘Buckland’s Run’. By 1870 Buckland had purchased the large Tirau block, which covered 25,000 acres from the Waikato River to the Waihou River (Burrige 1995).

The subject site was formally part of the Mangawhara Estate which was adjacent to Buckland’s estate. The Mangawhara Estate was established by the Ring family, who are stated to have been the earliest settlers on the Mangawhara block (Pond, 2017). In 1852 Charles Ring had discovered gold at Coromandel and in 1856 he and his brother received a crown grant in Coromandel where the Ring families became established. In

1879 Charles bought one thousand acres at Rangitunuku in the Mangawhara block (ibid). In 1881 Charles' son William built a homestead known as 'Berkley', he was married into the Gerrans family of Cambridge, and had seven daughters and two sons.¹

Newspaper Entries

The first identified newspaper reference to the Mangawhara Estate comes from 1886. This is the report of a railway journey in which the reporter is heading south, and arrives at the Hinuera Station. It provides a location for the Ring residence:

Then the seven miles come to an end, and on our left we see Mangawhero, and on our right Mangawhara, the Agricultural Company's tree-eveloped (sic) station on the former, and the pleasantly situated residence of Mr W. Ring in the latter. The line here seems to get mixed up with the cleaned-out bed of a creek, which we cross and re-cross I don't know how many times.²

In an article from 1893 a description of the part of the block to the north of SH29 is provided:

Leaving Okoroire early in the morning M McCaw and I drove on down the Thames Valley. While en route for Mangawhero we passed Mangawhara, the owners of which (Messrs. J. L. Wilson and Hume) have recently commenced to make improvements, consisting of a residence and necessary outbuildings and a considerable quantity of fencing and draining. Some 200 to 300 acres have been brought into grass, principally by surface-sowing, which seems to have taken well in this country; and a further scheme of improving a similar area is now in hand. This property is well situated, as it is intersected by the railway, and a station on the property... From Mangawhara could be seen the clearings on the estate of Mr. W. F. Buckland, M.H.R., at Taotaoroa, which consists of some 5000 acres.³

Later newspaper references into the turn of the century are advertisements for the sale of livestock from the estate. In 1911 there is a report of the unformed road 'near the creamery at Mangawhara Estate'.⁴ From c.1912 the land is referred to as the Hinuera Estate.

Between 1898 and 1907 vast areas of the large estates were taken over by the Lands Department, subdivided, basic roading and bridging provided, and sections of varying sizes balloted off to suitable settlers. The Mangawhara Estate however seems to have been unaffected by this change, in 1936 the following article was published:

The demand for good dairy land in the Waikato is still reported to be brisk and over the past week or so several sales have been recorded. The largest deal reported is the disposal of the Hinuera Estate, one of the oldest properties in the district, by the executors of the estate of the late Mr W.C. Ring to Mr J. Gore, of Tuhikaramea. The Hinuera Estate was founded by the late Mr W. C. Ring nearly 60 years ago and was the first privately held property in the district. The property, which comprises 757 acres, was bought from the Maoris by Mr Ring and for some years was known as the Mangawhara Estate. Mr Ring grazed sheep and cattle on the station and after his death four years ago Mrs Ring and the executors of the estate have continued the operations. The railway was constructed through the property ten years after it was

¹ <https://nzetc.victoria.ac.nz/tm/scholarly/tei-Cyc02Cycl-t1-body1-d3-d5-d3.html>

² WAIKATO TIMES, VOLUME XXVI, ISSUE 2147, 13 APRIL 1886, PAGE 2

³ NEW ZEALAND HERALD, VOLUME XXX, ISSUE 9169, 8 APRIL 1893, PAGE 1

⁴ WAIKATO ARGUS, VOLUME XXXI, ISSUE 4819, 4 OCTOBER 1911, PAGE 2

purchased but the estate has never been sub-divided. ...The land is flat and is excellent dairy country and for many years the business people of Matamata have been stressing its suitability for subdivision. The Estate is alongside the railway station factory and store and it is contended that ten or twelve good farms all within a mile and a-half of all facilities could be made available. The Matamata County Council has devised a roading scheme in case of subdivision. It is understood that the new owner does not intend to sub-divide and keen disappointment is felt in Matamata.⁵

Further information from this time is provided in an article published a day later, where it is disclosed that Mr. Ring 'was undoubtedly the original pioneer farmer of the district' and that he purchased the property 'exactly 56 years ago', with the property originally consisting of 813 acres. Furthermore it states that the main road was built after the railway and that it also went through the Ring Estate.⁶

The reporting shows by the 1880s there were a few farming families settled in Hinuera. The subject site was bought in 1879 from Māori owners by Charles Ring, one of the people credited with discovering gold in New Zealand, and was occupied and farmed by his son William. William built a house to the west of the Hinuera Station. In the 1880s the estate was divided by the railway and the main road (assumedly now SH29), and there was a creamery by at least the early 1900s. None of the articles provide details on the exact location of the buildings within the estate.

NZAA Recorded Sites

There are no recorded archaeological sites within the subject site (Figure 3). The closest recorded site is T15/173, this is c.3km to the south-east. The site is a headland pā, reported to be defended by almost vertical cliffs down to the Waihou River on three sides, with the northern approach defended by a transverse ditch. The majority of recorded sites are to the south-west where the pā and traditional garden sites mentioned above are recorded. The study area has none of the favourable geographical or geological aspects appealing to early settlement. The topography of Mangawhero Stream is relatively gentle not lending itself to a favourable defensive position for a pā and it is at some considerable distance for the Waikato River.

⁵ WAIKATO TIMES, VOLUME 120, ISSUE 20064, 9 DECEMBER 1936, PAGE 6

⁶ MATAMATA RECORD, VOLUME XIX, ISSUE 1790, 10 DECEMBER 1936, PAGE 4

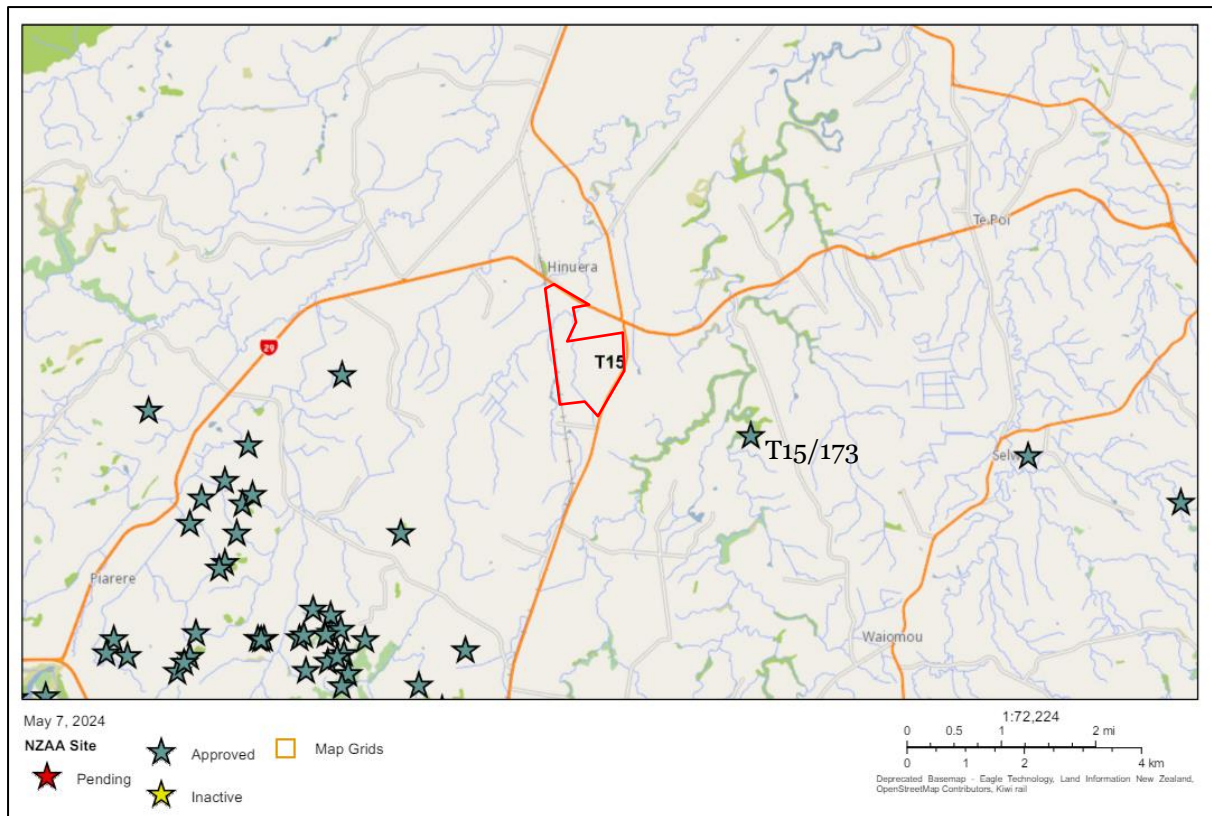


Figure 3: ArchSite Map of recorded archaeological sites, property boundary highlighted red.

The List

There are no items on Heritage NZ The List.

District Plan

There are no items of archaeological or historical interest identified on the Matamata-Piako District Plan.

Historic Survey Plans & Sketches

The oldest drawing identified which shows the general study area is Captain Newell's sketch map from c.1874 (Figure 4). This is before Ring established the Mangawhara Estate. The sketch plan doesn't show any features of archaeological interest within the study area.



Figure 4: Captain Newell's Sketch Map of the Waikato c. 1874. Approximate study area highlighted to the east of the Waikato River.⁷

Figure 5 ML3941 is dated to 1879, it appears to be a plan made for the Māori owners of the Mangawhara Block. Legible annotations include three dates for which this plan was 'produced for a sitting of the Native Land Court at Cambridge for the purpose of subdivision' including 1879, 1880 and 1884. The 1879 date would coincide with the purchase of the estate by Charles Ring. Other annotations on this plan include geographical features and roading, there are several references to 'old' survey lines and 'Old Lockspits'.⁸ There is an unusual gate-like symbol at the north-western boundary, a later plan indicates this refers to a 3-lot subdivision (DPS2475, 1953).

Figure 6 shows the railway survey plans from 1886 as the line passes through the subject site. The names of Wilson and Ring are identified on the north-east and south-west sides of the line respectively.

Figure 7 is from 1911, it shows the location of Hinuera Station to the north of the subject site. Land to west of the railway is annotated with the names of Philip Hawke, Richard Hawke, and W Ring. Within the subject site it is not clear if Ring's ownership continues. The site is annotated as 'undulating land with part grass and fern'. No further features of interest are shown.

Figure 8 is from 1917. There are several names annotated within the study area including 'W Ring', the 'Firth Bros', 'W Hayes', and 'Holmes'. Within Section 2, where Hayes name appears, a house and shed are annotated.

⁷ The sketch map is a paper and ink reproduction from the collection of the Waikato Museum. The detail provided from the museum states that 'This map, thought to have been drawn by military leader Captain Stuart Newall, shows the Waikato as John Callaghan and the Gibbons brothers new it in the early 1870s'

⁸ Lockspit being a trench dug in the ground to mark a boundary.

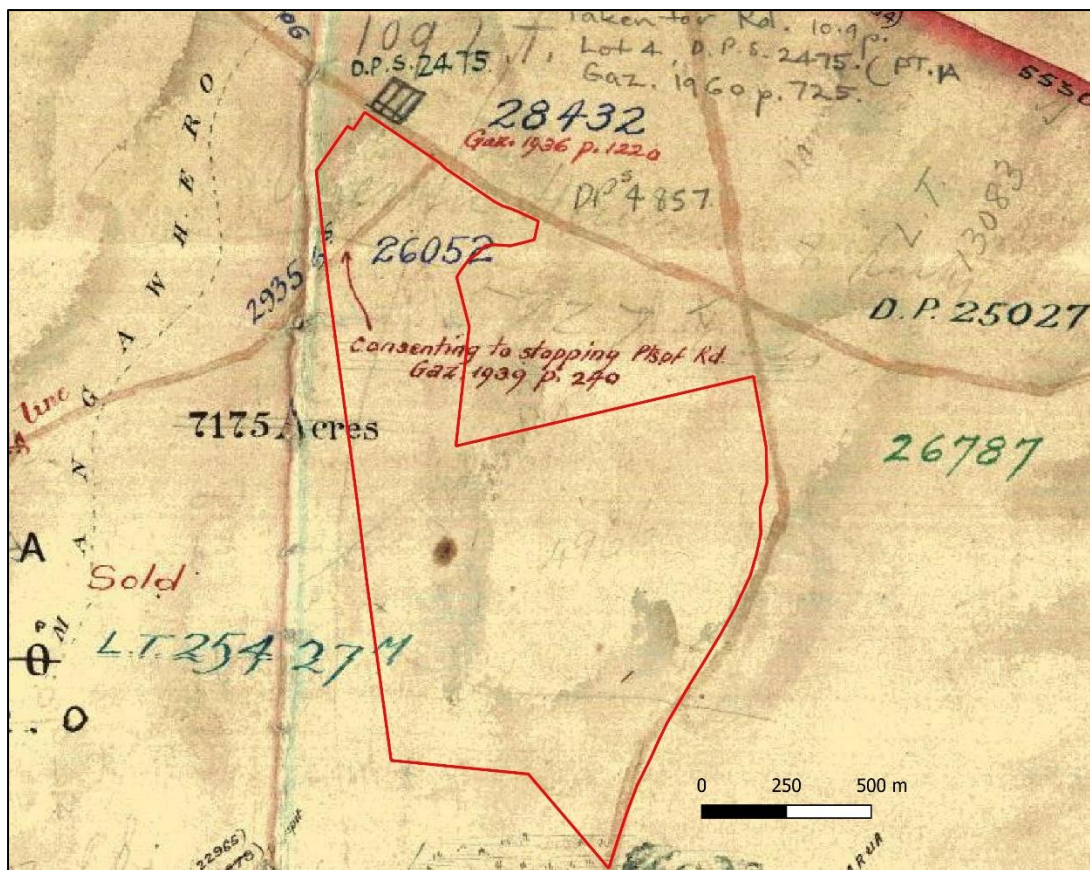


Figure 5: ML3941 (1879), subject site identified in red outline

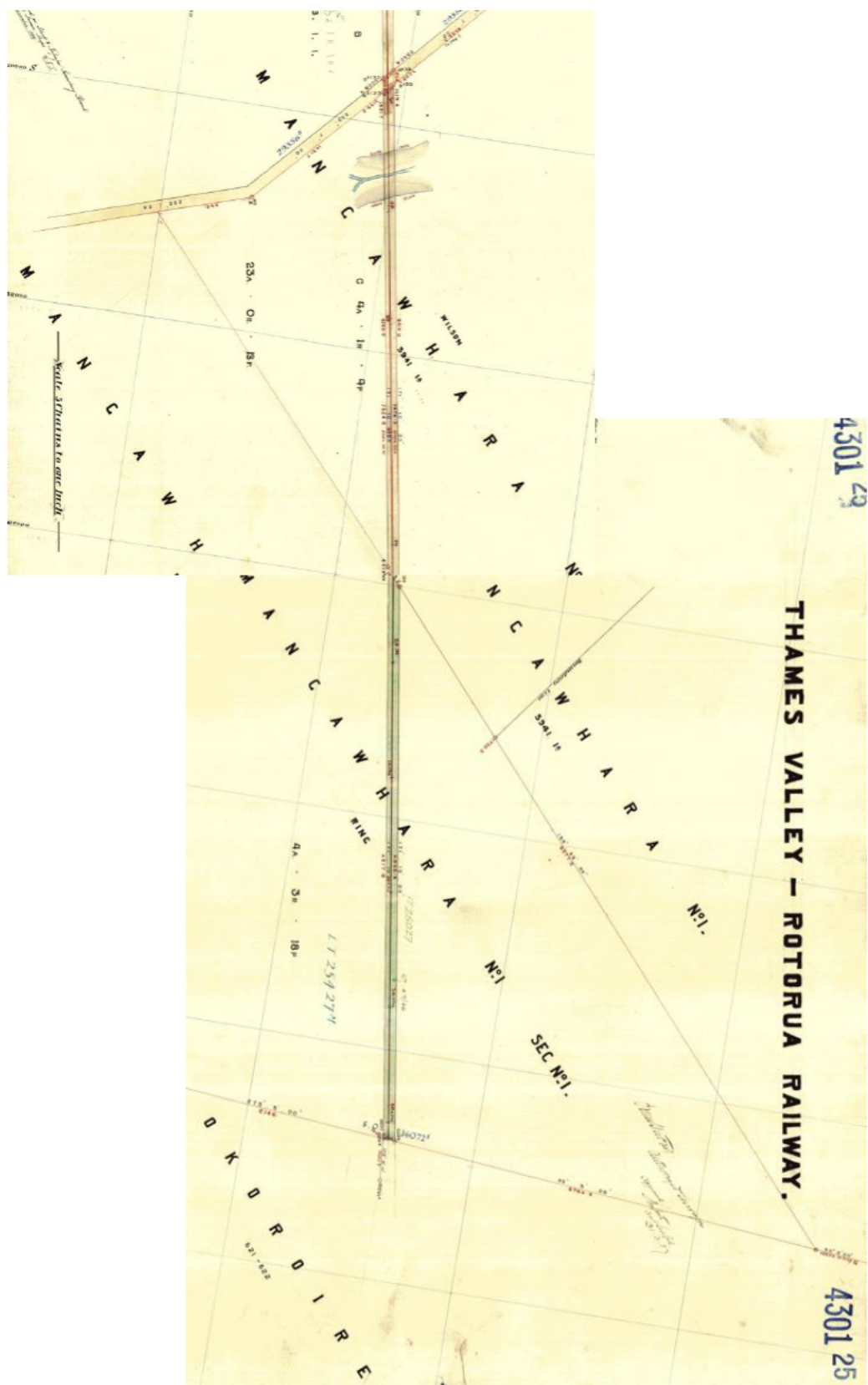
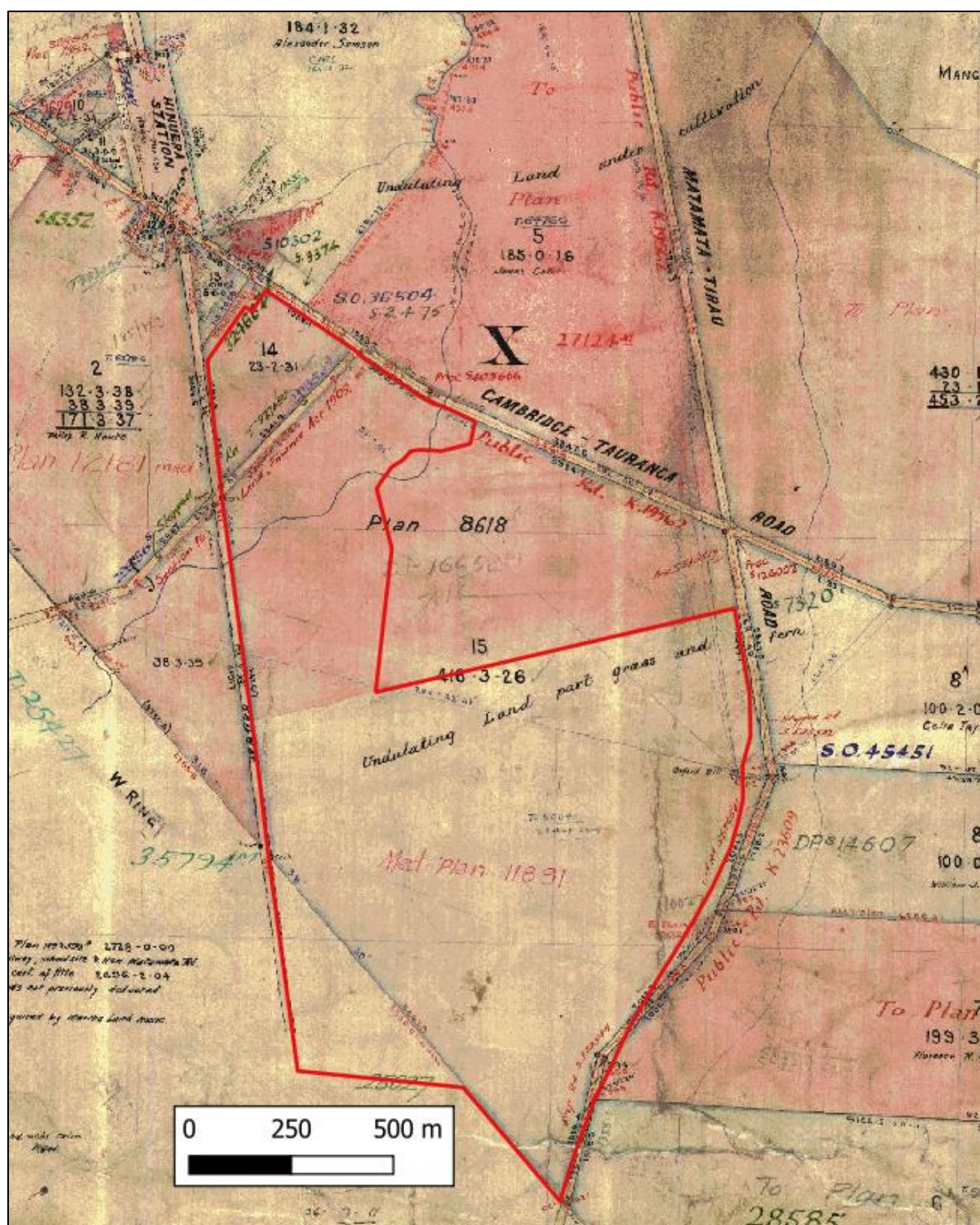


Figure 6: SO4301/24 & 25 (1886). Current study area on the east side of the railway.



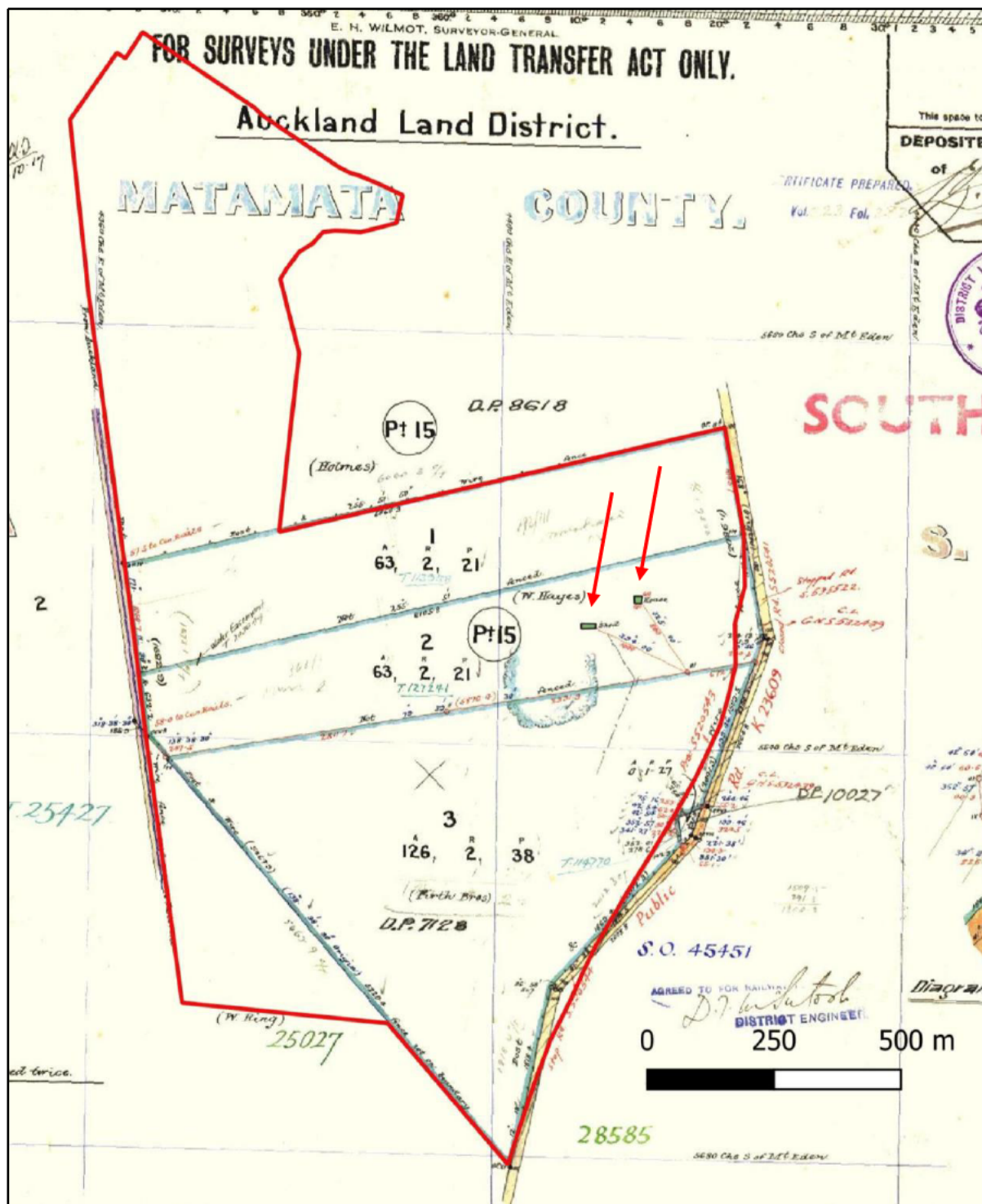


Figure 8: DP11891 (1917), house & shed arrowed

Historic Aerial Images

Figure 9 is a 1943 aerial photograph of the subject site. There are buildings visible in similar locations as where the house and shed are identified on the 1917 survey plan (Figure 8). However the plan is not considered accurate as when it is georeferenced on a GIS platform the house is c.40m SE of the aerial image and the shed is shown as one long building E/W oriented whereas in the aerial image there appears to be a cluster of two or three buildings.

Several other buildings are present within the current footprint, specifically to east and to the north-west. It is considered that those to the east will post-date the 1917 survey plan based on the fact that they were not annotated, whereas other buildings were marked by the surveyor. The other survey plans do not annotate buildings anywhere within or close to the subject site. This may be due to the fact there was nothing there, nothing substantial present, or that the surveyors simply did not record the buildings present.

The buildings to the north-west of the subject site are all visibly outside of the proposed solar farm. There is one small cottage fronting SH29 which is just on the northern boundary of the proposal.



Figure 9: 1943 aerial image (SN255 series, sourced from retrolens). Location of house & shed arrowed. Inset provide close up of house and shed with buildings from survey shown in green. Small dwelling fronting SH29 arrowed.

Site Visit

A site survey was undertaken on the 14th of May 2024 by Siân Keith and Ben Thorne. The focus of the survey was the Mangawhero watercourse to the north-west of the project footprint and the location of buildings identified on the 1917 survey plan and those visible on the 1940s aerial images. The grass was relatively short and access was given across the entire project footprint, the survey conditions were therefore favourable. A long conversation was had with Duncan Anderson, who owns the southern farm, regarding his knowledge of the history of his land. Mr Anderson was not aware of any sites of archaeological interest.

There is no visible evidence within the proposed development for the small cottage shown fronting SH29 across the northern boundary of the proposal. This is now just a flat paddock.

The Mangawhero Stream was noted to be a meandering stream valley which was flowing at the time of the visit. The grass is short to the stream bank and the stream has likely been maintained as a farm drain (Figure 10). There is no above-ground evidence for archaeological activity within the stream corridor in the subject site.



Figure 10: Mangawhero Stream Valley looking south-west, bridge in the distance.

Across the western boundary the stream is crossed by a railway bridge which is of iron and timber construction, possibly Australian hardwood. It could be a relatively early bridge, although it was not possible to access the bridge to confirm if any components could be original, although some earlier timber piles could be seen in the watercourse indicating a previous repair. The bridge was being repaired at the time of the field visit (Figure 11).



Figure 11: Railway Bridge

With the exception of farms buildings, all of the structures within the subject site are located on elevated land, and are located predominantly to the eastern side and outside of the proposed solar farm. The six buildings to the east noted on the aerial image are discussed below and are identified as 1-6 on **Figure 12**.

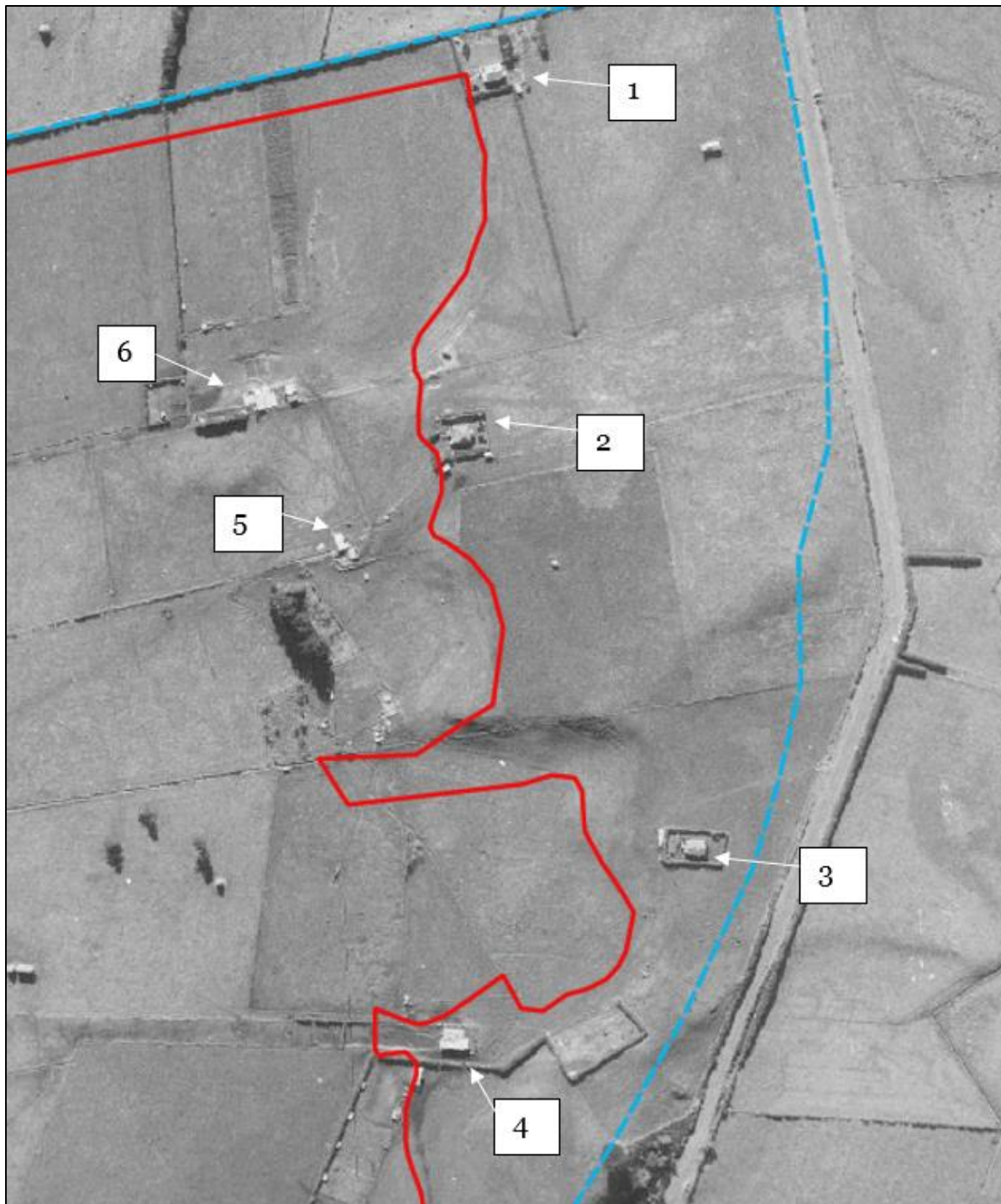


Figure 12: Six structures identified close to the subject site, red line defines extent of proposal.

The location of the house marked 1 on **Figure 12** was visited to determine if any aspect of this is likely to continue into the project footprint. The siting is a narrow ridge which falls relatively sharply to the north and west (Figure 13). There is no physical evidence for this former dwelling but it is considered to be outside of the proposal. Based on the fact that this building is not annotated on the 1917 survey plan, and could therefore be a later structure, and that it is outside of the solar farm footprint, this is not considered to present a risk to the project.



Figure 13: Location of former dwelling (marked 1 on Figure 12), looking north.

The location of the house marked 2 (Figure 12) is behind the current owner's house. This building is likely the same dwelling surveyed on the 1917 survey, and modern aerial imagery suggests it may still be present. This location was not surveyed as it was within a private dwelling and was not clearly visible from the boundary. Based on the fact that this building is confirmed to be outside of the solar farm footprint, this is not considered to present a risk to the project.



Figure 14: Dwelling (L - arrowed) and sheds (R) marked as 2 and 6 respectively on Figure 12, looking south.

The house marked 3 (Figure 12) was observed from the roadside only as it is within a private property. It appears to be of 1930s construction. Based on the fact that this building is not annotated on the 1917 survey plan, appears to be of 1930s construction, and is confirmed to be outside of the footprint, it is not considered to present a risk to the project.

The location of the building marked 4 (Figure 12) is a current farm building and appears to be of mid-20th century construction. Based on the fact that this building is not annotated on the 1917 survey plan and is outside of the footprint, this is not considered to present a risk to the project.

The building marked 5 (**Figure 12**) is in a similar location as the shed annotated on the 1917 historic survey plan. There is a building still present here which is a mix of old and modern, the older portion which may be the same shed from the 1917 survey plan. The older portion of the current shed complex is oriented north-south and on the survey plan it is east-west, however the survey plan is considered to be inaccurate, discussed above.

The bottom section of the shed is of poured concrete reinforced with iron bar, over which is board and batten wall construction (Figure 15). The roofing timber and wall framing appear to be partially original. There are hand-made square nail fixtures which are suggestive of an early construction date, perhaps from the late 1800s. The later wire nail technology which replaced square-headed nails was not commonly available for construction until the 1870s, and by the late 1880s such nails formed only 20% of the total production, rising to 75% by 1895.⁹ It cannot be discounted that hand-made nails were still in use beyond the known dates for manufacture of wire nails, especially for farm buildings which may have been constructed with whatever materials were in storage or easily available.

It is considered that the shed was likely built following the construction of the railway as obtaining the material for concrete in this location would have been difficult. In New Zealand experimental concrete building was undertaken from the later 1800s but became more common from c.1900 (Reed et al 2008). The shed could be post-1900 and even post-1917, although an earlier date cannot be discounted at this stage. Obtaining a proper date for this building would require a built heritage specialist.

At the location of the building marked 6 (**Figure 12**) there are what appear to be 20th century farm buildings (Figure 14). Based on the fact that these buildings are not annotated on the 1917 survey plan and the current buildings do not appear to have any pre-1900 fabric, these are not considered to present a risk to the project.

The balance of land is low-lying pasture divided into paddocks by hedges. Farm drains cross through the footprint, and there are farm races and other such infrastructure. There is no evidence for archaeological activity across the remainder of the subject site.

In summary, of the seven buildings identified from the 1940s aerials, five are confirmed to be outside of the study area. Within the study area is an extant shed which is visible on the 1943 aerial image. It is possibly the same shed as that annotated on a survey plan from 1917, although incorrectly drawn. The shed could be earlier, or indeed later, than 1917. The remaining building within the study area is a shed which is considered to be 20th century in construction.

⁹ <https://www.buildmagazine.org.nz/assets/PDF/Build-101-86-Building-History-Nails-Holding-Buildings-Together.pdf>



Figure 15: Shed building 5, inset shows square-headed nail.

Archaeological Values

There is a possibility that the farm shed marked 5 on **Figure 12** is pre-1900, however this would require a built heritage specialist to confirm. There is a possibility that the small cottage fronting SH29 is pre-1900, although the building is not within the extent of the proposal, associated features such as wells and rubbish pits could extend into the subject site.

There is no evidence to suggest that there are archaeological values associated with the balance of land.

This letter does not address the cultural value of any previously unrecorded archaeological remains that may be encountered as this can only be determined by tangata whenua.

Conclusions & Recommendations

If the shed marked as building 5 in **Figure 12** is to be demolished, it is recommended that this appraisal is provided to a built heritage specialist to determine if the upstanding shed building could be pre-1900 in date.

If there are any proposed earthworks close to the dwelling fronting SH29, this dwelling should be assessed further to determine if it could be pre-1900 in construction.

There are no known archaeological values across the balance of land, and no known reasons to limit the development based on archaeological values.

Ngā mihi,



Siân Keith
Principal Archaeologist

References

- Beer, E. and A. Gascoigne. 1975. Plough of the Pakeha. A Cambridge Regional History. Cambridge Independent New Zealand.
- Burrige, V. 1995. Landscape Approaches to Settlement Pattern Analysis: The Maori Occupation of Tirau. A thesis submitted in part fulfilment of the requirements for the degree of Master of Arts in Anthropology, University of Auckland.
- McCraw, J. 2011. The Wandering River. Landforms and geological history of the Hamilton Basin. Geoscience Society of NZ Handbook No 16. Graphic Press. Levin. NZ
- O'Malley, V. 2016. The Great War for New Zealand Waikato 1800-2000. Bridget Willaims Books.
- Stowers, R. and K. Field. 2014. Waipa. Home of Champions. Celebrating 150 Years. Te Awamutu: Waipa Community Charitable Trust.
- Pond, W. 2017. *Ninety Years of Going to School. Four generations of Pond children at Hinuera Primary School 1918-2013*. Handmade book (<https://www.alexanderpondarchive.leonbarton.net/pdf/hps.pdf>).
- Reed, P., K. Schooners, and J. Salmond. 2008. Historic concrete structures in New Zealand Overview, maintenance and management. Science & Technical Publishing Department of Conservation.
- Vennell, C.W., M. Gordon, M.E.W. FitzGerald, T.E. McMillian, and G.G. Griffiths, 1951. The Centennial History of the Matamata Plains 1777-1950. [Matamata]: Whitcombe and Tombs.