

**Archaeological Assessment for
Otamatea West Structure Plan Area
Whanganui**



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North Grange sign on gate, 209 Great North Road.

1. Introduction

This report was commissioned by the Whanganui ¹District Council (WDC) and describes the results of an archaeological assessment of the Otamatea West Structure Plan Area (Fig. 1). The information in this report contributes to Plan Change 46, which recognises the need to plan for future development in the Whanganui urban area.

Otamatea West Structure Plan Area (hereafter referred to as the study area) is located adjacent and to the west of Great North Road or State Highway 3 (SH3). The study area lies between 171 Great North Road and 209 Great North Road (at the north end) and to the west includes the area between Tirimoana Place and the formed end of Taylor Road (Fig. 1). Developed residential properties were not included in this study.

Historically most of the study area was part of Tayforth (now to the west) with Westmere (to the east) as the use of these names and the areas they refer to has varied somewhat through time. The study area is located immediately north west of the city of Whanganui, where suburban St. John's Hill meets rural Westmere, extending into rural Tayforth to the west.

The report identifies archaeological sites located in the study area and provides an assessment of the potential risk of further archaeological sites to be located within the area (Fig. 2).

The field assessment for this report was carried out by Archaeology North Ltd. during May and June 2017. A previous brief scoping survey of a more limited area was carried out in 2011².

The next sections of this report outline the legislative, environmental, historical, and archaeological backgrounds relevant to the study area. The assessment methodology and results are then presented, and an assessment of risk associated with development in the area is detailed. Finally, a conclusion to the report is presented, followed by a reference list. Appendices include a complete set of New Zealand Archaeological Association (NZAA) site record forms and an early newspaper description of land use in the vicinity of the study area.

¹ Both spellings of Whanganui/ Wanganui are used in this report depending on historical context.

² These sites were recorded with NZAA in 2015.



Figure 1: The study area is marked with a red boundary between State Highway 3 (Great North Road) and Taylor Road (off Tayforth Road). Base map retrieved from Google Earth.

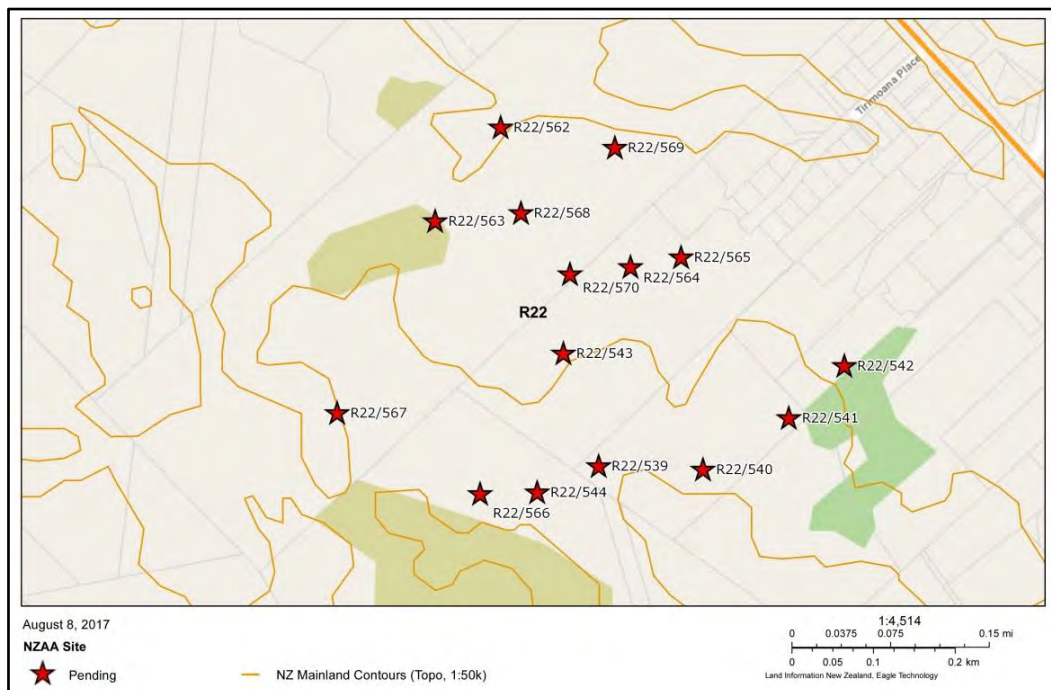


Figure 2: Map from NZAA Archsite showing distribution of recorded archaeological sites within the study area. Site records for each of the sites are provided in Appendix One. All sites are classified by NZAA as ‘pending’, as new information added to ArchSite requires approval.

2. Legislative Background

This section outlines the legislation that is relevant to this report. There are two main pieces of legislation in New Zealand that control work affecting archaeological sites. These are the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA)³ and the Resource Management Act 1991 (RMA).

Heritage New Zealand Pouhere Taonga (HNZPT)⁴ administers the HNZPTA. This Act contains a consent (Authority) process for any work affecting archaeological sites, with an archaeological site defined as:

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

1. 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
2. Provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and
3. Includes a site for which a declaration is made under section 43(1) of the Act.

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

The archaeological Authority process applies to all archaeological sites, regardless of whether:

The site is recorded in the NZ Archaeological Association Site Recording Scheme or included in the Heritage New Zealand List; and/or

The site only becomes known about as a result of ground disturbance; and/or

The activity is permitted under a district or regional plan, or a resource or building consent has been granted.

Most archaeological remains are below the ground surface, and are not visible. Standing buildings that predate 1900 can also be considered as archaeological sites.

³ In 2014 the HNZPTA replaced the Historic Places Act 1993.

⁴ The HNZPT replaced the N.Z. Historic Places Trust in 2014.



Figure 3: Section on a low sand dune near to Great North Road showing the natural dark topsoil that develops under grass, with a weakly developed grey-brown sand subsoil over lying clean lighter coloured sand.

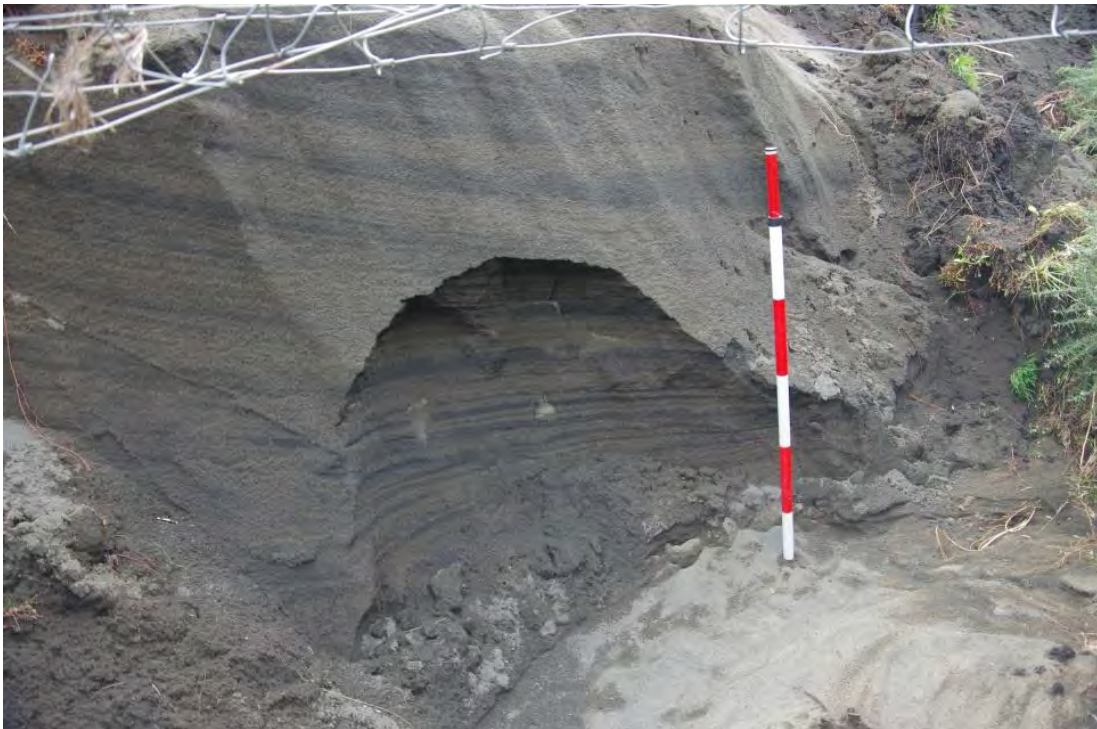


Figure 4: Layering in wind-blown sand exposed by erosion, over 5 m below the top of the dune.

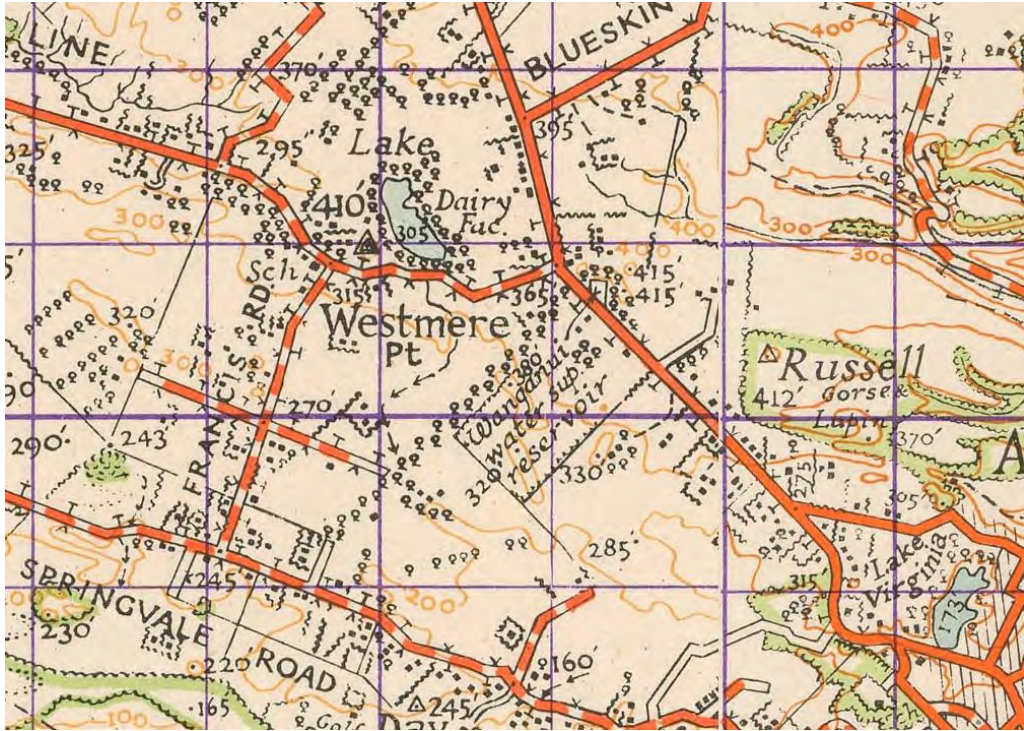


Figure 5: The 1943 inch to a mile topographic map showing the study area, with about one third of the area marked “Wanganui water supply reservoir”. The lack of residential development over most of the area is apparent. The map shows the 1876 double line of Eucalyptus running between Great North Road and Springvale Road (this section of the road is now called Tayforth Road). (Combined NZMS1N137 and N138).



Figure 6: Looking north across farmland on the portion of the study area beside Great North Road, the upper terrace land in the study area, showing the low sand dunes running across the area.



Figure 7: Looking north, across the upper terrace, at the back of 181 Great North Road. An old drainage ditch can be seen in the centre of the image. On the right are buildings once used as a poultry farm.



Figure 8: Looking southeast along a drainage ditch across what was once wetland on the back boundary of the 209 Great North Road property. The pine plantation is on a high weathered sand ridge within the study area.



Figure 9: Looking east from the western edge of the study area showing a series of low sand dunes and looking towards the large historic trees on the upper terrace land near centre of the image.



Figure 10: Looking north east across the valley to the large pines at the back of 181 Great North Road, where the old poultry farm is located.



Figure 11: Looking southeast across what is probably the lowest part of the study area, showing a variety of exotic trees running down the valley.

3. Environmental Background

This section outlines the environmental context of the study area. The study area is located just over 4 km from the Tasman Sea coast and 3-4.5 km from the Whanganui River to the south (in a straight line). Today most of the area and surrounding vicinity is farmed, with some areas cultivated, and others in lifestyle blocks, housing or other uses (Figs. 1-2 & 5 -11).

Geologically the study area lies where the late Pleistocene uplifted seabed of the Rapanui Terrace meets the Brunswick Terrace and the lower terraces of the Whanganui River to the west (Fleming 1953: 30-39). The terraces' substrate is made up of gravel, silt and sand which form level table lands except where they have been eroded by waterways.

Virtually the whole study area is covered in wind-blown black sand formed into dunes of greatly varying sizes that are part of the Westmere Dune Complex, a series of irregular dune ridges, some with an east-west axis and original dune forms that are difficult to define. Towards the west, the dunes form large successive parabolic dunes, some of them nested within one another. The dunes in the study area are variable with some made up of multi-layered strata of wind-blown sand, which can

be seen in eroded sections (Figs. 3-4), however the small amount of active erosion in the study area limits the visibility of archaeological strata.

Throughout the study area, harder marine and riverine deposits lay underneath the comparatively modern sand dunes. This profile results in a shallow water-table and the formation of hard pan, resulting in poor drainage in the inter-dune areas that leads to the formation of peaty swamps and ponds.

The sand country soils in the area are defined as yellow-brown sands and sandy gley soils and organic soils, which form in such wetter environments (Cowie 1963; Gibbs 1980). This diversity of soils permits a wide range of qualities and uses. Evidence of soil development varies over the study area. One of the reasons for this is that soils can be subject to wind erosion and drifting of the sand. This can occur, for example, when vegetation is depleted or destroyed by burning or through over-grazing. In places, small patches of fertile Westmere loam soils, which become common just north of the study area, may occur and these would have made some localities more attractive for gardening.

The sequence and ages of dune phase formation have been established elsewhere in the Manawatu, as far north as the Whangaehu River, using the formation of top soil, the distance from the coast, the presence of tephra and pumice and the dune orientation (Cowie 1957; 1963). The youngest phases are considered to have been set off by early Maori and the European burning of the vegetation on the dunes leading to their destabilization. It is probable that a comparable sequence applies to the Tayforth-Westmere study area. Mobilization of the sand dunes can erode and destroy archaeological sites, as well as drifting sand burying and obscuring older archaeological sites, a capacity long recognized by archaeologists (Field 1892; Walton 2000).

Top soil develops rapidly under grass and has provided a well-defined dark top soil up to 20cm deep present over much of the dunes in the study area. A shallow grey-brown subsoil is also usually present with a clean grey-black sand beneath (Fig. 3). In some areas the top soil is a more weakly developed grey-brown sandy soil. Elsewhere including on some very steep slopes a deeper dark top soil, which is rich in charcoal is present. Charcoal results from the vegetation being burnt with the presence of deeper charcoal rich soils indicating a relatively stable landscape subsequent to the burning. Destabilization of the dunes can lead to massive movements by wind-blown sand and lead to considerable depth of sand build up (Fig.4).

In a few places small exposures of the sedimentary substrate of gravel are visible, usually with a sand overburden. Sometimes patches of loose gravel are present within the sand.



Figure 12: Extract from 1862 plan of the Westmere Estate, showing the study area as owned by Taylor and Watt. The plan also shows a flax mill on the lower Mokoia Stream (lower centre of image). Also shown is Rapanui Road as “Track to Farm”, Lake Pickwick and the location of Watt’s homestead adjoining the lake. No cultural or constructed features are shown on the plan in the study area. (Anon., Whanganui District Council Archives).

Waterways in the area mainly flow towards the south and southeast (Figs. 1, 5 & 12). The Mokoia Stream, which exits from Lake Westmere, and runs just to the west of the study area, once flowed onto the swamp lands of Mosston and Springvale, joining the Karamu Stream (also known in the town as Churtons Creek) before flowing into the Whanganui River.

Dune lakes, including Lake Westmere (Roto Mokoia), Virginia Lake (Roto Kawau), the now drained Lake Pickwick (Taihorenu) as well as other unnamed ponds and lagoons, which formed close to the edge of the Rapanui terrace, are located in or close to the survey area and are a significant feature of the landscape (Figs. 1, 5 & 12). The larger lakes were formed when dune sand blocked a stream valley (below the terrace level) leading to water ponding (Fleming 1953: 33).

The poor drainage from the hard panning of the terrace soils, and other lack of drainage, means that swamps covered much of the landscape and dug drains are a

prominent feature of both the historic and modern landscape (Fig. 7 & 8). The area was very wet and when Taylor and Watt's Westmere Estate was subdivided into over 50 sections in 1887, the advertising for the sale described the sections as well supplied with water, with nearly every one having its own spring or site for a dam (Wanganui Herald 1 November 1887, p. 2). Quicksand was also a feature in the historic landscape (Wanganui Chronicle 16 August 1883).

Most of the study area is now in farmed grassland and no remnant of the original native vegetation appears to have survived the development of the area. Early maps of the area give no indication of the type of vegetation present when the area was first surveyed in historic times. Forest had been cleared from almost the entire Whanganui/South Taranaki coastal strip through burning by the 1840's, leaving the area in a scrubby mix of manuka (*Leptospermum ericoides*), bracken fern (*Pteridium esculentum*), and tutu (*Coriaria* spp.) with patches of bush left in valleys and some other places (Cowie 1963; Walton 2000: 11-13). This scrub and fern was the typical vegetation in the sand dune environment, present along most of the west coast. Flax (*Phormium tenax*) was also probably abundant in the wetter parts of the study area and at least one flax mill was located nearby in the 1870's (Fig. 12).

By later in the 19th century, the study area was being converted to stock grazing, with "good English grasses". Drifting sand was present in other parts of the wider area. Over 100 years of grass growth and pastoral farming have stabilised most of the landscape in the study area and resulted in development of a relatively deep topsoil, which together with build up from wind-blown sand, can act to obscure evidence of the pre-European archaeological landscape and archaeological sites such as midden.

Planting of exotic trees (both as single trees and small plantations), particularly *Eucalyptus* took place in the late 19th century with macrocarpa (*Hesperocyparis macrocarpa*) and then *Pinus radiata* becoming more popular in the 20th century (Figs. 8, 10 & 11). Remnant trees of earlier plantings in the study are present, as well as a small number of other older exotic trees (Figs. 8, 10 & 11). The most striking historic planting is adjacent of the study area (to the northwest). This is a long, straight, double line of *Eucalyptus*, over 2 km long, that runs east-west between Great North Road and Tayforth Road and was planted by Taylor and Watt before 1876. The majority of the original trees which are shown on Figure 5 are still standing. With continued encroachment of urban development, a wide variety of exotic species are now present along the more developed eastern margins of the study area. Gradual modern clearance of the older exotic trees is also an on-going process.

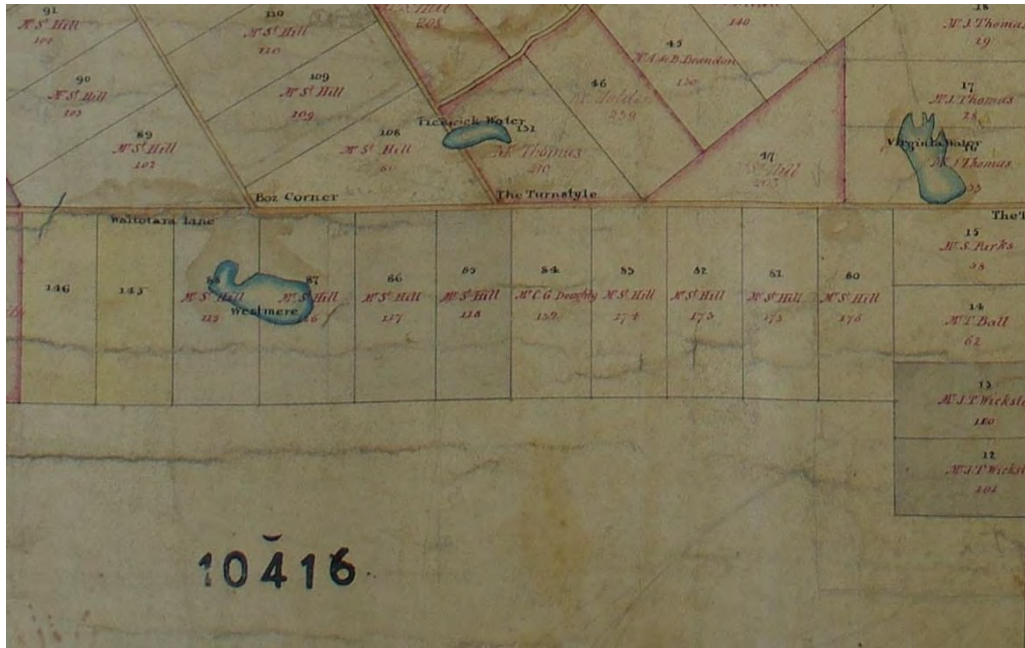


Figure 13: Extract from 1842 plan SO 10416 drawn by New Zealand Company Principal Surveyor Samuel Brees, showing sections 81-84 which are within the study area. West of Westmere Lake two similar sized sections coloured yellow were to be set aside as reserves for Maori (Brees 1842, National Archives, Wellington).



Figure 14: Extract from plan, SO 10291 Crown Grant record map.1883, showing the grantees, based on new surveys Sections 80-84 and parts of 231, 234 and 235 which are within the study area (Anon. 1883, National Archives, Wellington).



Figure 15: Extract from the 1876 Henry Field survey plan of the new water supply pipeline showing the location of Tayforth House and the associated plantation. The house site has been recorded as R22/568 and the pipeline as R22/570. (Field 1876, Whanganui District Council Archives).



Figure 16: Extract from the 1887 sales poster for the Westmere Estate that shows Section 33, which is part of the study area. The poster shows three buildings on the section labelled "Homestead". These buildings are in a different location to Tayforth House shown on the 1876 survey plan (Fig. 15) and the house and garden shown the 1903 sales poster (on Fig.17). This poster also shows the "approximate" course of the 1876 water pipeline (Anderson & Lewis 1887, Alexander Heritage and Research Library).

4. Historic Background

This section discusses the historic background of the study area. No specific references to Maori use of the study area have been located to date. The main waterways, lakes and associated swamps were named and would have had significance for resource acquisition by Maori in the pre-European past, providing a variety of foods and resources such as eels, birds, raupo and flax. Most Maori settlement was concentrated within 5 km of the coast, because of the importance of gardening, fishing and other lowland resources.

The study area was included in the New Zealand Company purchase of Whanganui and initial land allocations were shown on an 1842 company plan, So 10146 (Fig. 13). Sections 80-84 are all part of the study area and fronted onto what is now Great North Road. The plan shows Sections 80-84, each about 100 acres, as being granted to Mr St Hill and Mr C. G Doughty with two sections on Rapanui Road (west of Westmere Lake) set as reserves for Maori. However, later on when the final grants of land were determined by the Crown Sections 80-83 went to Thomas Curtis Vipan and Section 84-85 to C .C. des Vieux, neither of whom lived on the sections and they on-sold them with Vieux's sections passing to William King and most of Vipan's to Taylor and Watt, who were the original grantees of Section 231 (which was not part of the original New Zealand Company allocation) (Fig. 14). As well as Section 231, which is partly within the study area, Taylor and Watt also owned Westmere Lake itself and considerable other nearby land in Tayforth and Westmere, that they farmed. Section 231 was 380 acres and adjoined the southern end of Sections 81-83, off the end of the present Taylor Road.

Taylor and Watt were prominent Wanganui based merchants and ship-owners. Captain Thomas B. Taylor (1816-1871) lived at Belmont and was drowned in a shipping accident. William Hogg Watt (1818-1893) was the Mayor of Wanganui off and on between 1872 and 1881, the Wanganui Representative on the Provincial Council from 1857-1876 and Wanganui's Member of Parliament from 1881-1884.

John Maxwell was the owner of Section 234 in 1856, of which a small corner is included in the study area. From at least the 1870's he lived on and farmed his Westmere property, called Parkhead, with his family. He died there in 1895.

In the 1870's the water supply to Whanganui was piped from Virginia Lake and in 1877, W. H. Watt offered Lake Westmere and its water to the town as an additional water supply (Smart and Bates 1972:191). A pipeline was surveyed and laid across his

farmland (through the study area) to join the pipe from Virginia Lake (Fig. 15). This pipe was a 6 inch ceramic pipe. The survey plan shows some detail of the surrounding countryside, most of which remained undeveloped except as grassland for stock. The Watt Fountain, unveiled in 1881 in Victoria Avenue commemorates his gift. In 1883 the pipeline was replaced with an 8 inch iron pipe, on a different route, also presumably through the study area. The exact route of this has not been established from records during this study.

In 1887, after the death of Taylor and the division of the property, an initial attempt to auction Watt's land, known as the Westmere Estate, failed and the property was subdivided. The (renumbered) sections were advertised again for auction later in 1887 (Fig. 16). Most of the sections did not sell, but later in 1887, Section 33 (within the study area), which included the Tayforth homestead, was sold to David Corrie. Details of the origin of the homestead are not known, but it may have dated from the 1860's. The Westmere Estate sales poster shows the homestead as a cluster of three buildings and locates these closer to Great North Road than the other plans.

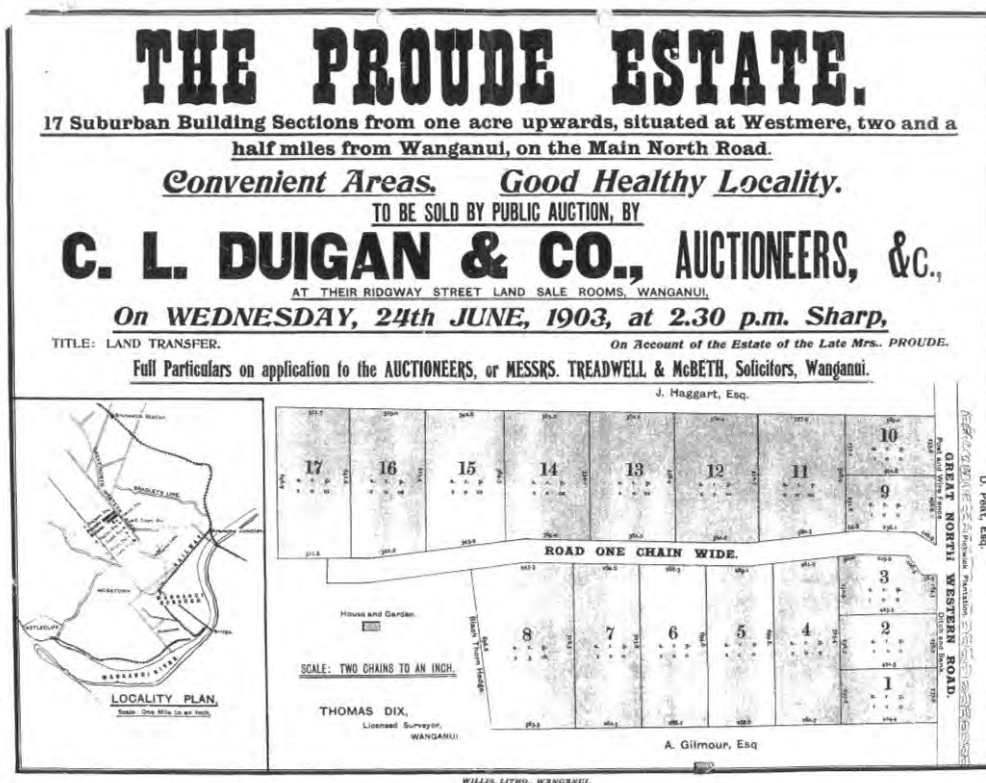


Figure 17: Sales poster for The Proude Estate, June 1903. The poster shows the location of the Proude house and garden. It also shows the neighbouring property owners, the location of Gilmore's house and the location of a ditch and bank fence along part of the Great North Road boundary. The subdivision was not successful and the property remains in one title today (Dix 1903, Alexander Heritage and Research Library).

In 1890, the Proude family - consisting of Joseph and Maria Matilda Proude and their five daughters and one son (also called Joseph) - moved to Wanganui from England, purchasing Section 33 and the Tayforth homestead (all within the study area). By then (and probably earlier) the property was called 'North Grange', the name which remains on the gate at the modern entry to 209 Great North Road. Joseph Proude was a certified colliery manger. Maria passed away in 1896 (Wanganui Chronicle January 8, 1896) and Joseph in 1902 (Wanganui Herald 22 September 1902), both at North Grange.

In 1903 the Proude Estate was subdivided and put up for auction with the sales poster showing 17 suburban sections from one acre upwards (Fig. 17). The estate was in Mrs Proude's name. The family homestead and garden (shown on the poster) and the back part of the property were not included in the sale. The house shown on the plan was presumably the Tayforth homestead also shown on the 1876 Westmere water pipe plan (Fig. 15). The Proude Estate was subdivided earlier and the 1903 Proude Estate sale poster shows the adjoining properties and the owners, with the houses facing Great North Western Road. Opposite the Proude's property was that of David Peat and the Pickwick *Eucalyptus* plantation (23,000+ trees planted about 1880 by James Laird), some of which are still standing. Other nearby properties shown were owned by J. Haggart, Esq. to the west and T. Taylor, A. Laird and W. Corry to the east. E. Tingey's house was across the road from Laird's house.

The auction sale of the Proude's property was not successful and Section 33 remained undivided, passing through several owners who farmed sheep and cattle until it was obtained by the Bristol family in the early 20th century. On return from World War I, Frank Bristol, with the help of other returned servicemen, built a new house for the family slightly to the west of the Proude house. The land is still owned and farmed by Orton (Bruce) Bristol, who was born in the family house (pers. comm). Bricks and concrete remains now mark the location of the Bristol house.

European land use in the study area in the 19th century was mainly dairy and sheep farming, but included a poultry farm and tree nursery (Wanganui Herald 16 July 1891). Along the Great North Road frontage most of the study area was small holdings with some small tree plantations. In the mid-20th century a significant portion of the land was designated as Wanganui Water Supply Reservoir, probably reflecting the abundance of spring water in the area (Fig. 5).

A 1942 aerial photograph⁵ shows that by then, residential development in the study area was almost entirely confined to the area adjacent to Great North Road, where there had been some expansion of the small holdings with houses. Most of the rest of the study area was in grass, but a large area was under what is probably fern and scrub and an area of semi-active sand dunes was located at the south western end of the study area.

5. Archaeological Background

This section discusses the wider archaeological context of the study area. Whanganui has a well-established tradition of archaeological site survey with systematic recording beginning in the early 1960's, mainly by Colin Smart (Smart 1960a, 1960b, 1962, 1963), who recorded a large number of sites in Whanganui and South Taranaki. Tony Walton, who worked for NZHPT and DOC, more recently provided a comprehensive review of the archaeology of Whanganui and South Taranaki, outlining how the proximity of seasonal resources played a major role in determining the location and longevity of settlements in these areas (Walton 2000). Walton notes that “...*the inland margins of the sand country around the lakes and lagoons, contains a strip of occupation*” that warrant “*a special mention.*” (Walton 2000: 23) This inland margin is where the study area is located.

Many areas in the wider Whanganui District have not been archaeologically field surveyed and relatively little is known about the pre-European archaeology. Walton wrote that that “*Knowledge of the prehistory of the Wanganui-Taranaki region is limited. Few sites have been investigated scientifically or systematically*” (Walton 2000: 44).

Early descriptions of archaeological sites were made by a variety of individuals who travelled about in early European times, many of whom were keen observers of antiquities. This included, for example, the missionary Richard Taylor who noted the abundance of cultural and moa remains amongst the sand hills bordering the Whanganui, especially near the Wanganui Heads (Taylor 1872: 99). Another notable example is the surveyor Henry Field, who provided a lengthy description of the abundance of stone and bone remains along the cliff tops between Kai Iwi (or the nearer Omapu Stream) and Whanganui, which included area out from Otamatea where the cliff line prevented access to the beach (Field 1876).

⁵ NZAM 1942, Patea-Feilding Survey No. 215, Run 381-7.

In 2001, the WDC commissioned an archaeological scoping report to assist with the development of appropriate management of the district's archaeological sites, recognising there is a lack of current and detailed knowledge of the sites (Taylor and Sutton 2001). This study was to provide a priority programme for systematic study of the areas with a high probability of containing unrecorded archaeological sites, with consideration to the number of likely sites and the potential for development to affect them. The study area that this report focuses on was included as a priority area for further archaeological field survey.

Subsequently the WDC has carried out a programme of desk-top inventory, with limited field work, which has led to the identification of a significant number of additional archaeological sites in the Whanganui District (Horwood & Taylor 2011). This includes sites in the study area and surrounding area. Following there have been some recent archaeological field surveys and one small excavation in or close to the study area, details of which are outlined further below.

In 2008, development of a new house site on a small subdivision in Rapanui Road, just over 2 km northwest of the current study area, resulted in the discovery of an extensive burial ground on a high sand dune, which was recorded as NZAA archaeological site R22/496 (Taylor 2008). Archaeological survey of the subdivision resulted in the recording of a further archaeological site, R22/500, that included shell midden, fire cracked rocks from cooking and possible pits and terraces (Taylor and Sutton 2008). These were the first archaeological sites recorded with the NZAA in the Westmere, Tayforth or Otamatea area. The presence of a burial ground indicated a resident population, which may have extended as far as and included the study area.

Site R22/500, the midden and possible pit and terrace site, was archaeologically investigated by scraping the hilltop down with a machine, hand excavating the features and obtaining a radiocarbon date (Jones 2009). The date of 601+/-36 BP indicated that the site was occupied between 1350 and 1460 AD (68.2% confidence) and by inference, other comparable settlement in the vicinity and in the study area may also be of a similar age.

This date is significant as it is from a relatively early phase of New Zealand history marked by change with widespread clearance of bush on the coastal strip, the use of local resources and small closely spaced settlements. About then, the settlement pattern also began to change as the population and the size of social groups increased. This led to a rise in demand for fertile soils for horticulture and to a

related rise in warfare and the development of fortified settlements or pa, which are the most conspicuous archaeological sites in the region.

An archaeological field survey in 2011 was undertaken in the Otamatea area of the Tirimoana Structure Plan Area. This included the current study area as a part of the Otamatea West Structure Plan area and resulted in the recording of six archaeological sites R22/539-544, all pit and terrace or shell midden sites (see Appendix One for copies of the NZAA site records).

In 2011 a district-wide desk-based archaeological inventory survey for WDC, primarily based on historic aerial photographs and maps, resulted in the identification of numerous archaeological sites around Lake Westmere (Horwood & Taylor 2011). The majority of these sites were storage pits and borrow holes associated with horticulture, usually the cultivation of kumara (Furey 2006). Storage pits for kumara are a common site type in Whanganui and elsewhere in the North Island. The pits were roofed and used to store kumara over winter. Borrow holes were created from the mining of fertile Westmere loam to add to existing soils to aid kumara cultivation. The areas, where the black sand and Westmere loam soils meet (just north of the current study area), provided particularly attractive soil conditions for kumara gardening. Most of the newly identified archaeological sites listed in the inventory survey have not been field checked, nor recorded with the NZAA.

It is highly probable that earlier pre-European settlement was focused around Lake Westmere and on nearby sand dunes with the areas of more fertile soils being used for gardening, principally kumara.

Another archaeological field survey on the northern rural fringe of Whanganui was undertaken in 2011-2012 in the in Springvale/Mosston in the area immediately south of the current study area (Taylor & Sutton 2012). This survey did not locate any archaeological sites, but noted that some of the areas with modern habitation were also the most favourable areas for past settlements. The presence in the area of numerous karaka (*Corynocarpus laevigatus*) trees was noted as the berries from these trees were cultivated in the past as they were a food source for Maori. Karaka trees growing outside of their natural range (Whanganui is outside of this range) are regarded as a good indicator of past Maori occupation (Costall et al 2006; Maxwell & Tromp 2016; Walton 1999).

In 2012 a further archaeological field survey was carried out in the rural areas of the Otamatea (East) Structure Plan Area, to the east of the Great North Road boundary

of the current study area, off the end of Mannington and Pickwick Roads. This resulted in the recording of six archaeological sites, R22/549-554, all midden, pit or terrace sites. The archaeological evidence indicated that the area was settled in the pre-European era and that settlement was limited in size to probably family or whanau sized residences dispersed over the landscape, rather than dense or protracted settlement. It was likely these sites were part of an early community that extended from Lake Westmere and probably included the study area.

Historically the (East) Otamatea Structure Plan Area was called Pickwick after the small lake in the area. Pickwick was the site of a 19th century meat and rendering works, vineyards, residential settlement and a *Eucalyptus* plantation.

Elsewhere along the lower north island west coast in Manawatu, Horowhenua and South Taranaki abundant archaeological remains and living sites are often present amongst the lakes and swamps of the coastal sand dune lands and adjacent terrace country (Adkin 1948; Buist 1976; McFadgen 1997; Walton 2000).

6. Assessment Methodology

The initial archaeological assessment for this study was based on walk-overs and surface inspection of the study area. Eroding sand faces, ground disturbed by animals and exposed surface features were examined, photographed and their locations were recorded. Developed lots with houses and other amenities located along the Great North Road frontage were not included. No ground disturbance such as test hole digging was undertaken.

Background research, which included a review of existing archaeological data and published and unpublished historical information, was carried out. Sources consulted included:

- ArchSite – the online New Zealand Archaeological Association database - to find archaeological sites recorded on or near to the proposed project footprint.
- Historic maps and plans sourced from the National Archives in Wellington, and the Alexander Heritage and Research Library, Whanganui and Whanganui District Council Archives.
- Local and regional histories in the possession of the authors or held at the Whanganui District Library.

- Other archaeological reports completed on archaeological work carried out in the vicinity of the project footprint, sourced from the HNZPT digital library.
- Papers Past (<https://paperspast.natlib.govt.nz/>), the National Library website, that has on-line editions of old newspapers including the Wanganui Herald for 1867 to 1920 and Wanganui Chronicle 1874 to 1919, was also searched for historical information about the area.

Previous archaeological studies in the Whanganui area, including A Scoping Report on the Archaeological Sites of Wanganui District (Taylor & Sutton 2001) and Wanganui District Council Historic Place and Archaeological Site Identification Project (Horwood & Taylor 2011), and the Structure Plan assessments prepared for the WDC, provided valuable background information. This earlier work and further background research was used to identify likely locations of archaeological sites in the study area so that these areas could be ground-checked during the current assessment.

The 1942 N. Z. Aerial Mapping series of aerial photographs (Patea-Feilding Survey No. 215, Run numbers 381/7 and 380/10 & 11) and early survey maps for the study area were scrutinized. Aerial photograph composite sheets from the 1954 NZMS 3 series, Sheets N137 and N138 were examined for evidence of archaeological sites.

The history of part of the study area was also discussed in person with the Mr Orton (Bruce) Bristol, the long-time owner of North Grange and other property in the study area.

At the time of the field survey, the study area was predominantly in well-grazed grass, with scattered exotic trees and one area of pine plantation which had an open understorey. In some areas, long grass obscured the ground surface. This added to the difficulty of identifying some archaeological site types such as midden.

Archaeological site locations and their NZTM grid references were determined with a Garmin GPS 60CS X in all cases, with a maximum of 4-5m error.

Tangata whenua were not consulted during this assessment. This report is for the purposes of recording and documenting archaeological evidence and is not intended to represent cultural significance an assessment of which should be sought separately.

No New Zealand Historic Places Trust (NZHPT) or HNZPT Authorities have been granted for the study area, nor any areas in the immediate vicinity.

There are no buildings or structures listed in the WDC District Plan within the study area. The nearest heritage listed item is No. 453 the Turere Place Precinct, a modern subdivision with 20 sections, which recognises the design quality of the development. There are no HNZPT listed items on the study area.

7. Results

Six archaeological sites of probable pre-European origin and three sites of European origin were recorded as a result of this assessment. Including the six previously recorded sites in the study area, a total of 15 archaeological sites are now recorded there. The recorded sites are listed in Table 1, which includes the NZAA site number, the site type and the NZTM grid reference. The site locations are shown on Figures 2 and 18. The NZAA site records for the study area are included as Appendix 1 and provide individual site descriptions and photographs.

Table 1: Archaeological sites identified in the study area.

NZAA site No.	Site type	Easting	Northing
R22/539	5 Pits	1772090	5580440
R22/540	9 Pits	1772218	5580436
R22/541	2 Pits	1772323	5580499
R22/542	Pits/Midden/terrace	1772391	5580563
R22/543	Midden	1772047	5580578
R22/544	Midden	1772015	5580408
R22/562	Midden	1771970	5580855
R22/563	Fire cracked rocks - haangi	1771890	5580740
R22/564	Midden	1772129	5580684
R22/565	Fire cracked rocks - haangi	1772191	5580696
R22/566	Midden	1771945	5580406
R22/567	Midden	1771770	5580505
R22/568	Historic house site	1771995	5580750
R22/569	Ditch & bank fenced square	1772110	5580830
R22/570	Historic pipeline	1772055	5580675

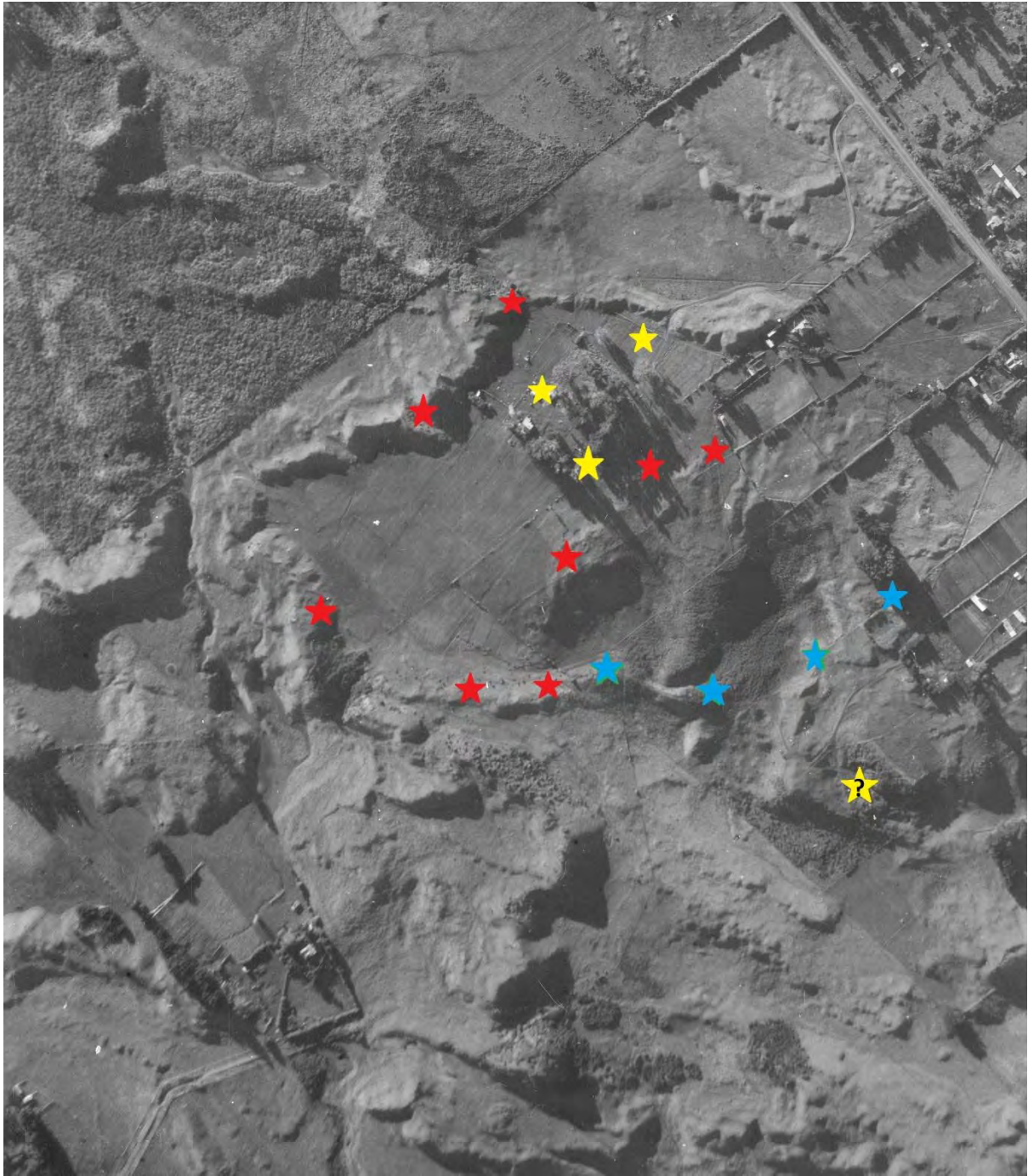


Figure 18: Extract from the 1942 aerial showing the location of the recorded archaeological sites, colour coded according to site type. Red stars are middens and fire features (haangi); blue stars are pit sites; and yellow stars are historic sites. See Figure 2 for site numbers. The yellow star on the lower right with a question mark is the location of a possible historic site which includes an iron boiler and pond, which has not been recorded as a site.

The most common type of archaeological site recorded in the study area were shell middens. All of the shell was pipi in a sand matrix, which had been exposed by erosion or other ground disturbance. One midden, R22/544, which was located in 2011 after shell had been exposed by rabbit borrowing, was not able to be relocated in 2017.

Almost all shell observed was small pipi shell, which could have been obtained for food from the Whanganui River, about one hour away from the study area by foot. No shells from other marine environments were observed. Some of the middens have very small numbers of other estuarine shell species, small animal (dog and fish) bones and fire cracked rocks. No fresh water mussel shell was observed, although it is common in other archaeological sites in the Whanganui area near to other inland dune lakes and streams, for example in the sites NZAA recorded around Lake Kaitoke and other nearby lakes. Small pieces of pumice were present at site R22/567 which elsewhere on the North Island's west coast has served as a temporal marker for sequencing and dating sand dunes (Cowie 1963).

Within the study area, at least five of the middens recorded were buried under 20-30cm of clean sand, which had built up subsequent to the deposition of the shell. This included sites R22/543, 544, 562, 564 and 567. This is significant as it shows that sand dunes in the study area were de-stabilized in the past (after the middens were deposited) and that the sand moved and buried the middens and most likely other evidence of the landscape and any earlier human occupation.

Fire cracked rocks were also identified at most of the midden sites in the study area. The rock fractured from heating when used in cooking fires, the heat causing it to break (Walton 1999: 65). Two of the recorded sites, R22/563 and R22/565, consist of exposures of only fire cracked rocks and charcoal. These are very likely to be the remains of haangi, a traditional method for cooking food on heated rocks in a shallow hole in the ground. Other than a very small number well scattered pipi shells, no other archaeological evidence was found at these two sites.

Four storage pit sites were recorded in the study area. These pit sites consist of groups of rectangular or sub-rectangular hollows, some better defined than others, and sometimes with associated level areas or terraces. These pit sites occur at localities that are typical, elsewhere in the North Island, of pit sites, including on narrow ridge and crests, on small knolls and on the edge of areas that drop off on one side, so that drainage of the pits would be assisted. The pit sites lie in line on the eastern margin of the study area on the higher and drier ground, on either side of a

small valley (Fig. 18). The proximity between the pit sites suggests a relationship, indicating that this area may have been the focus for past gardening activities and probably residential occupation and associated activities (Walton 1999).

The recorded pit sites in the study area are less well defined and more irregular in shape than is often recorded. This irregularity can be explained by the presence of drift sand partially covering and obscuring the original form of the pits. The implication of this is that a significant proportion of archaeological evidence in the study area may remain undetected as the archaeological sites can be expected to be buried under 20-30 cm of drift sand.

Level areas, or terraces as archaeologists call them, are sometimes used as house or living sites, that can occur singly or in groups and are often, but not exclusively, associated with pits (Walton 1999:56-58). It is possible that some of the recorded terrace sites may have natural origins and the level areas (and some of the pit hollows) could have been created by the wind or animals. However, terraces of natural origin may also be modified and utilized for cultural purposes. For example site R22/562, a large natural terrace with shell midden around its edges, is likely to be where people were consuming the food on the flat sheltered terrace. Well defined examples of pit and terrace sites have also been recorded nearby at Pickwick.

Some of the archaeological sites of pre-European occupation in the study area may have originated from longer-term occupation associated with small residential settlements. These are likely to include house sites and occupation terraces, pits for kumara storage, shell and bone middens, cooking areas, gardens, burial grounds and other archaeological site types. Some sites may also relate to occupation from short-term camps associated with exploitation of the various resources in the study area, and these would include camp sites, cooking areas, middens and a small number of other site types. Further archaeological investigation, and most likely excavations, would be necessary to better determine the nature of the Maori occupation.

There is no evidence of fortified Maori sites such as pa within the study area and none are recorded for some distance around the study area. Archaeologically pas are generally associated with larger populations and later, longer-term Maori occupation. No evidence has been identified of occupation of the study area by Maori subsequent to European settlement.



Figure 19: A charcoal stained soil 40-50 cm deep exposed in the section on the edge of a track. This soil has potential to be a Maori garden soil. It is close to the pit sites and is on an easy slope. Further investigation would be necessary to confirm this as a garden soil.



Figure 20: A charcoal stained soil about 30 cm deep overlaid by a clean grey sand of equal depth exposed in a section in the pine plantation in the study area. This location is very steep and is very unlikely to have been the site of a garden.

A variety of places in the study area have distinctly black topsoil much deeper than the top soils normally develop under grass and some of these may provide evidence of pre-European gardening (Walton 1999: 66-67)(Figs. 19 & 20). In some places such charcoal stained soil forms the modern topsoil and in other places it is buried under 20-30 cm of a lighter coloured and cleaner sand. In places the dark soil can be seen to be heavily charcoal stained and contain lumps of charcoal and sometimes patchy gravel. Such charcoal soils commonly originate from human activity most often burning, gardening or sustained occupation. Such burning may have occurred when Maori cleared the original or secondary vegetation from the dune sand ridges, which can offer suitable locations and soil fertility for growing kumara, following a slash and burn type crop rotation. The dry sand results in a dry vegetation, which can be relatively easy to burn and clear, and then the fresh soils with potash offer a short term burst of fertility providing a productive soil for a limited number of crop rotations. The presence of kumara pits in both the current study area and nearby in Pickwick provides additional evidence that Maori were gardening in the area. The black charcoal rich soils have not been recorded as archaeological sites as, but some of the soils may be garden soils and confirming this and determining the extent of any gardening would require an HNZPT authority.

Wetland gardening, growing taro, in swamps or wetter areas may have also been possible in the study area.

Borrow holes are another characteristic site type found in some areas used for gardening by Maori and the holes are common in the Whanganui and South Taranaki areas, where the Taranaki ash and sometimes sand was mined (Walton 1999:66). However, although borrow holes could be expected in the study area, possible holes were only identified at site R22/543. Comparable depressions on the windward side of some of the low dunes on the terrace land near to Great North Road were considered as likely to be natural in origin. Gravel was also often quarried for gardening and added to gardens to lighten denser soils and small patches of gravel were observed in exposed sand sections in a few places in the study area.

The pre-European environment in the study area would have provided opportunities for both dry-land kumara and wet-land taro cultivation, as well as the seasonal harvest of resources from the swamps, streams and wetlands, including, for example, fishing for eel and other fresh water fish, bird hunting, and extracting raupo for food, building, tools and other uses. The dry sand ridges, which would once have been vegetated with light bush or scrub, would have provided access into and around the swamps, with sheltered locations for residential communities and shorter term

camping type occupation. The Mokoia Stream, which flowed from Lake Westmere into the Mosston swamp and other nearby swamps and lakes, would also have served as a source of food.

In other nearby areas such as Mosston, Springvale, St Johns Hill and in gullies elsewhere in Westmere, karaka trees, which provided a berry valued as a food source, have been observed to be relatively common during field visits, indicating that, although Wanganui District is well beyond the natural habitat of karaka, the species was introduced and cultivated by people.

Further work would be necessary to determine whether the sites identified as kumara storage pits and terraces are definitely archaeological in nature. Such archaeological testing or excavation can only be done under an HNZPT Authority. Pits rarely occur in isolation and if it can be confirmed that the recorded pits are archaeological sites, the implication is that further occupation sites may be present. As noted, in addition to the site types already recorded other sites could include small residential settlements and a variety of other site types.

As discussed by Walton (2000), and suggested by the date for the Rapanui Road sites (discussed above) these sites could date from a relatively early period of occupation of Whanganui (see Section 5, Archaeological Background). Such early settlements are rare and difficult to locate and may have particular archaeological value. Potentially, such archaeological remains could provide a variety of evidence that could help develop a greater understanding of aspects of the early settlement in Whanganui and the wider west coast area.

It is highly likely that further archaeological sites of Maori origin are concealed in the study area by being buried under sand that has drifted over the study area. The nature of any buried sites is not known. Buried archaeological sites may occur over almost the entire study area.

The archaeological sites of 19th century European occupation derive from a shorter time span. European sites also can be better defined from documentary evidence. The study area was farmed from early in the European era of settlement in Whanganui, but due to the limited number of land owners (and occupiers), combined with the distance from the township before adequate roads were constructed, there are only a limited number of historical archaeological sites present. This also limits potential for there to be more historical sites. The identified sites include homesteads or houses, associated gardens and plantations, ditch and

bank fencing, drainage, two municipal water supply pipelines and perhaps a flax mill. Ditch and bank fences were once a common constructed feature of the 19th century landscape in use before wire fences became common (Smart 1966).

Historically, most of the land in the current study area was owned by the business of Taylor and Watt who developed and farmed the land until late in the 19th century. A 1905 newspaper report provides useful background account of their estate and is included with this report as Appendix 2. Historic sites which have been identified and recorded are Tayforth House, R22/568, a ditch and bank enclosure R22/569 (possibly also a house site) and the 1876 municipal supply water pipeline, R22/570.

Some of the black top soils in the study area have their origins in the later European burning of the scrub and fern during landscape development for stock grazing, which undoubtedly occurred over the large estate farmed by Taylor and Watt during the second half of the 19th century. European cultivation or cropping within much of the study area may have occurred on a limited scale in some of the more suitable level areas. For example, Site R22/569 may have been a well fenced garden area.

Other potential historic sites have also not been recorded because they have been destroyed or because the details of the site are not clear or known. For example, the ditch and bank fence shown on the 1903 Proude land sales poster along part of Great North Road was not recorded as it was probably destroyed by the widening of SH3. Undoubtedly there were also other ditch and bank fences within the study area that have not been identified, and also drains that were dug in the 19th century, but the origin of these cannot be demonstrated.



Figure 21: An iron boiler located on a small levelled area beside a small pond. The location of the boiler is shown on Figure 18. This may be an historic archaeological site but was not recorded as one with NZAA as further information is required as to the boilers origins.

Another possible unrecorded historic site in the study area is marked by the presence of a riveted boiler and a pond on a levelled area (Fig. 21). An old formed track leads to the locality from the direction of Great North Road and other earthworks of unknown origin are also present in the vicinity. Steam power was commonly used in the 1870's. It is possible that the boiler could be the remains of a flax mill, which were numerous in the wider area (Smart And Bates 1972 145-146). Further investigation into the origin of the boiler and the associated earthworks should be undertaken before development occurs in the area. This locality was possibly also a small scale quarrying operation.

In the 19th century two water pipelines were laid from Lake Westmere to join the town supply near to Virginia Lake both running through the study area. One, surveyed and constructed in 1876, consisted of a 6 inch ceramic pipe and is recorded as site R22/570 (Fig. 15). The other pipeline is a steel pipe that replaced the original line in 1887, but no map of its route has been located. It is known that it took a different route, which probably crosses the study area.

Some of the larger old trees in the study area, particularly those in the vicinity of site R22/568, are likely to date from the 19th century and consideration should be given to protecting the trees during any development of the area.

8. Risk Assessment

With the presence of 15 recorded archaeological sites within the study area and the high potential for further archaeological remains to be buried under drift sand there is a significant risk that archaeological sites will be encountered in the study area during development activities. Most archaeological evidence by its very nature is buried and not visible. The presence of recorded archaeological sites in an area is the strongest indicator that further sites are likely to be present. The raised drier areas located on sand dunes and other higher sloping areas are probably the localities with the greatest risk of further archaeological remains being present.

Further sites can be expected to be identified by the presence of shell middens, fire fractured rocks and cooking fires. Such middens and the associated remains are likely to be related to the presence of small pre-European settlements within the study area, or may be related to temporary use while seasonal resources were harvested from nearby bush, streams, swamps and small lagoons. These sites may occur on or in dunes over the entire study area in similar contexts to those sites already recorded.

It will be necessary to confirm that the sites identified as probable pits and terraces are actually archaeological in nature. This is likely to require archaeological testing and/or excavations and this can only be done under an archaeological Authority from HNZPT.

If it can be confirmed that the recorded pit features are archaeological sites, then this would increase the likelihood that some of the black charcoal rich soils are garden soils. To confirm the presence of garden soils would also require an HNZPT Authority.

Food storage pits and gardens rarely occur in isolation from other settlement and their presence would mean that settlements where people resided are likely to be located nearby, also probably within the study area. Small settlements usually include a variety of associated living, working and activity site types. Quantities of artefacts, such as stone flakes, tools and adzes, may be found at settlement sites. Pre-European house sites and small settlements can be difficult to identify archaeologically during field survey (particularly if they are buried under drift sand). Human burials may also be present.

If such small settlement sites exist on the study area, they may be relatively early in date, perhaps 15th century or earlier (see Section 5, Archaeological Background). Small middens and temporary camps may relate to later exploitation of the area.

The presence of archaeological sites in environments other than the sand dunes, such as the swamps, cannot be excluded, as swamps were used for a variety of purposes in ancient Maori society. If the recorded pits and middens are components of longer term settlements, this would raise the probability that nearby wet or swamp areas may also contain archaeological evidence. Wet areas have the potential to preserve artefacts made of wood or fibre, which normally do not survive in dry environments. Wooden remains could include, for example, the remains of traps for eels, fish or other animals, agricultural implements or other tools and hidden wooden Taonga. Wood working was also carried out in swamps as wet wood can be easier to work with stone tools. Also, in some west coast areas, human burials can be found in swamps.

The archaeological remains in the study area could potentially provide a variety of evidence concerning the pre-European settlement of Whanganui. Information recovered from such remains could develop a greater understanding of aspects of the early Maori settlement near Whanganui and on the wider west coast area, which (as noted above) is not well known.

There appears to be a very limited potential for the discovery of complex or extensive pre-European archaeological sites, as the archaeological evidence found suggests that the area was not intensively occupied or inhabited for extended periods. No evidence of fortifications or pa sites was located during the assessment and there are no pa identified or recorded archaeologically in the wider Westmere/Tayforth area.

There is limited potential for there to be other historic archaeological sites of European origin that were not recognised during the field survey or identified through the background research. Apart from the examples already mentioned remains could include features such as fences, house piles, chimney bases, paths, wells, long drops and rubbish pits from the mid-19th century onwards. Archaeological site types related to flax exploitation, quarrying of gravel and other early industries may also be present.

9. Conclusions

Fifteen archaeological sites have been identified in the study area. These are seven sites with deposits of shell midden, two sites consisting only of in situ fire cracked rocks and four pit sites, some with terrace features. One of the pit sites located in 2011 was found to also contain shell midden in 2017. Three of the recorded sites were of European origin.

Tangata whenua should be consulted about the future management and possible development of the areas where pre-European archaeological sites are located. The HNZPT requires such consultation as part of the HNZPTA Authority application process.

The archaeological remains on the study area have been recorded as NZAA archaeological sites R22/539-544 and R22/562-570 (Table 1; Figs. 2 & 18) and all of these sites can be considered as archaeological sites as defined by the HNZPTA.

The study area has a high risk for the presence of further pre-European archaeological remains. In addition to the archaeological sites recorded to date additional unrecorded archaeological remains can be expected to be present. These sites are likely to have significant archaeological values.

All archaeological sites are protected and any disturbance by earthworks requires an authority from HNZPT to confirm the identification of the pit sites and charcoal rich soils as archaeological sites of pre-European origin it would be necessary to undertake test excavations and investigations under an HNZPT Authority.

The future development of the study area may require earthworks for infrastructure development, subdivision and/or house construction. If such works may disturb recorded or currently unknown archaeological sites, an HNZPT Authority would be necessary before the work can be undertaken. The extent and area of earthworks required for potential development will determine the likelihood of discovery of buried remains i.e. the more ground disturbance and earthworks undertaken the more likely that any archaeological remains that may be present will be disturbed.

The sand dune ridges and other dry higher ground in the study area have the highest potential for discovery of buried prehistoric and historic remains. The best factor in predicting the presence of archaeological sites is recorded sites already being present in the vicinity.

Pre-European archaeological sites are most likely to originate from early occupation of the area and these may provide evidence from residential settlement and gardening activities and also from seasonal utilisation of swamp resources. Short term camps associated with these activities may also be present.

There is only limited potential for further evidence of use in the area by European settlers, but additional sites such as cottages, drains or flax industry sites may be present. Consideration should be given to protecting the larger older trees which are part of the historic landscape and originate from the 19th century.

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