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The Timberly Road Excavation Site R11/2379, Auckland

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Introduction

The excavation of site R11/859 for the proposed Northern Runway Development (NRD) at Auckland International Airport remains one of the largest excavations undertaken in the Auckland region in recent times (Figure 1). The excavations and analysis (Campbell and Hudson 2011) revealed a significant village with dramatic evidence of a large number of burials. R11/859, along with the other substantial village sites associated with the volcanic cones of South Auckland, lie at the confluence of the rich marine resources of the inner Manukau Harbour and fertile volcanic gardening soils, making them attractive for pre-European Maori settlement (see e.g., Clough and Turner 1998, Lawlor 1981, and Veart 1986 for some of the archaeological investigations in the area). Further inland, the soils eventually become replaced with less fertile clay but the easy topography and riverine resources continue to make for attractive settlement locations. Commercial development at the eastern end of Timberly Road, Mangere, on the western banks of the Pukaki Creek, provided the opportunity to explore a different aspect of the regional archaeological landscape (Figures 1 & 2). Ten archaeological sites were identified during the development of the property based on the exposure of midden deposits typical of the area (Farley and Clough 2015). Excavation of the largest site, R11/2379, was of particular interest with over 250 features identified along with midden and 27 worked stone artefacts. R11/2379 was probably a typical mid-size habitation site, larger than the majority of small campsites found nearby, but not as substantial as the large kainga or villages found nearer the coastline, such as R11/859, or those associated with the volcanic cones. The results presented here therefore illustrate how the pre-European Maori settlement in the Mangere area shifted over time. The site also proved to be a useful testing ground for interpretation of the heavily modified features typically found in this part of Auckland.

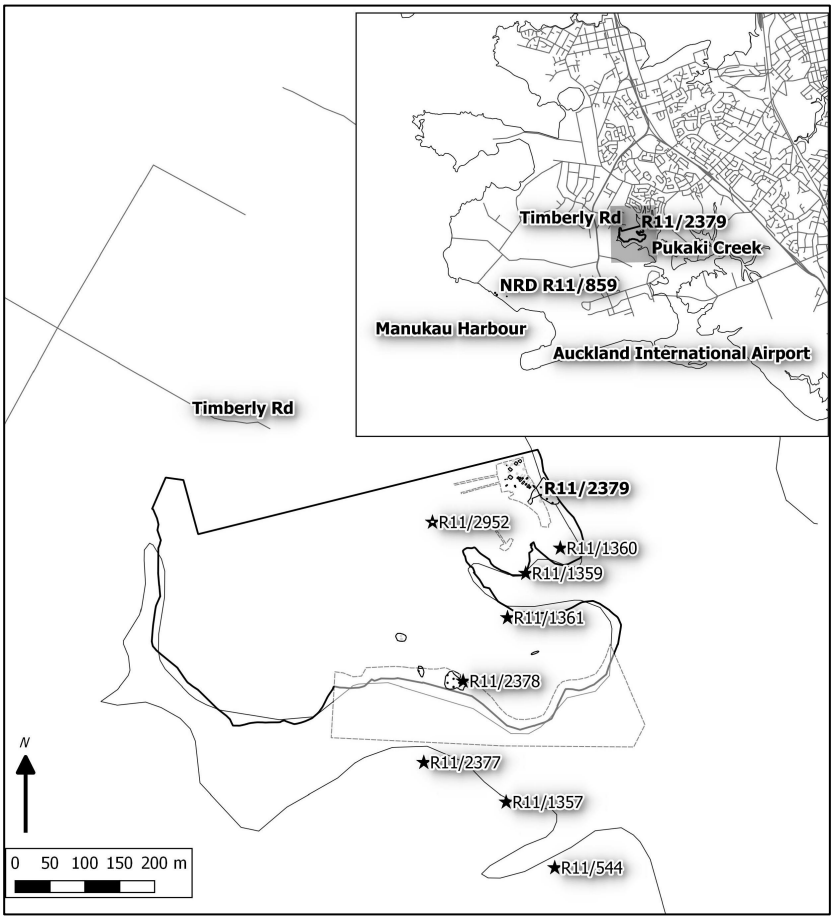

Figure 1. The project area indicated with recorded archaeological sites displayed.

Background

The topography in the immediate vicinity of R11/2379 is generally flat, with a fairly sharp descent of approximately 4.5m on the eastern bank dropping down to the creek. A small central knoll rises above the surrounding area, reaching 9.5m above sea level. The location affords views up and down the estuarine Pukaki Creek, which discharges into the Manukau Harbour. These views would have been far clearer prior to the heavy silting of the creek and subsequent mangrove expansion. The banks of the Pukaki Creek and tributaries are lined with more

than 170 recorded archaeological sites. Much of the focus of habitation appears to have been in the vicinity of the nearby volcanic craters: Pukaki Lagoon and Selfs Crater (Crater Hill).

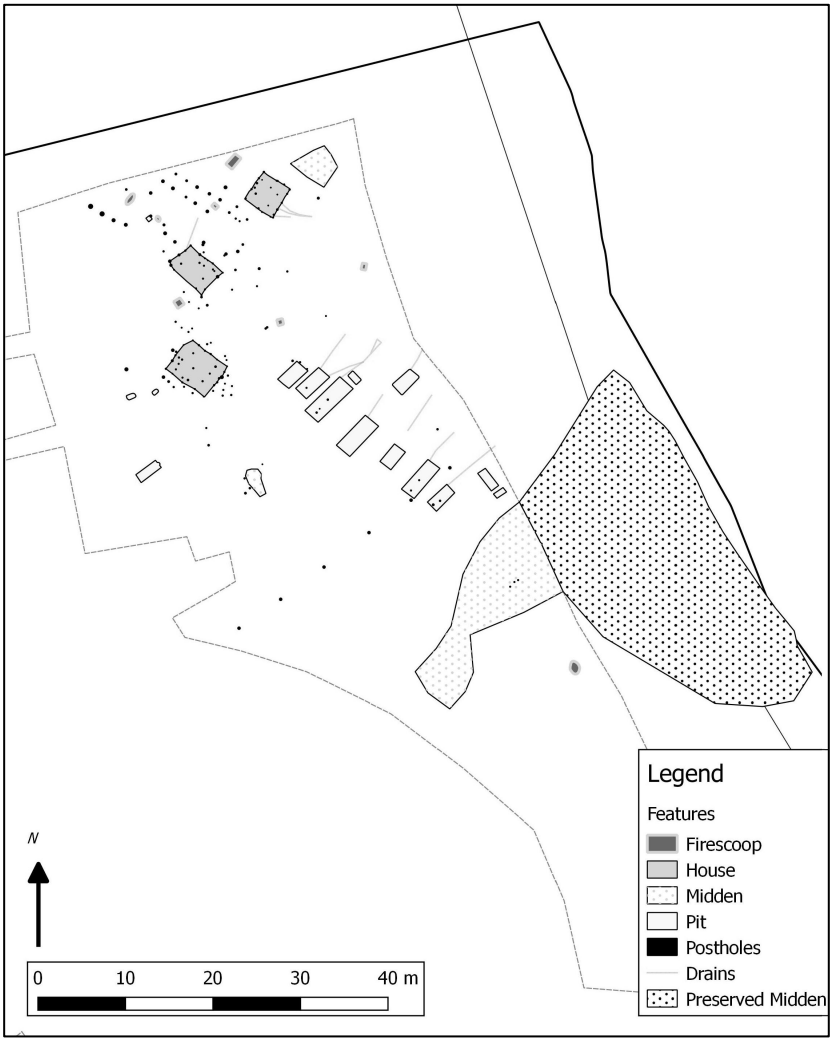

Figure 2. Site plan of R11/2379.

The history of the Maori settlement of the area is complex and beyond the current scope of this article, but additional reading is available in the various archaeological reports associated with the excavations (see e.g., Farley and Clough 2015 relating to the current project). The dating of the site would appear to be associated mainly with the traditional descendants of the Tainui canoe crew members who became part of the iwi known as Nga Oho; however, they eventually developed their own tribal identities over time. Descendants of Rakataura became known as Ngai Riukiuta, and predominantly occupied the Tamaki Isthmus. The descendants of rangatira Poutukeka remained in the Manukau area and were known as Ngati Poutukeka. In the 1600s, Ngati Poutukeka adopted the name Waiohua to commemorate the death of Huakaiwaka, the paramount chief who dominated the Auckland region at the time. Te Waiohua controlled much of Auckland from 1690-1750; however, from the mid- to late-1700s, conflict with Ngati Whatua severely impacted the tribe. Despite warfare and later European land acquisition, descendants of Ngati Poutukeka and Te Waiohua, including Te Akitai Waiohua and Ngati Tamaoho have remained closely connected to the Ihumatao papakainga (or ancestral home) with active interest in the archaeological work undertaken in the Region.

Excavation

Site R11/2379 was initially recorded as a midden consisting of oyster and cockle shell extending some 15m along the coastal scarp. Excavation inland from the recorded site found that a shell deposit was spread irregularly over an area of approximately 20m by 10m perpendicular to the scarp. Multiple plough lines criss-crossed the excavation zone and this contributed to the spread of shell material which followed a natural dip that drains down into a small gully. The shell deposit was generally quite thin, with a maximum thickness of just 5cm. Many of the other archaeological features were also very shallow and artefacts often showed severe post-depositional wear.

Features were identified running north of the midden (Figure 2). These included various pits, drains, fire scoops, and posthole alignments forming house structures. These covered an area measuring approximately 65m (N-S) by 45m (E-W). The features clustered in clear functional groupings. At the southern end midden and circular firescoops were present, representing the food cooking and preparation area. Just to the north of this a group of food storage pits was identified, situated on the north-eastern side of a small knoll, with drains descending out of the downslope corners and draining away to the northeast (Figure 2). Further to the north of this was a large collection of postholes along with square or rectangular firescoops which indicated the habitation zone.

Three shallow and ploughed midden deposits were found. The main deposit identified was more concentrated, covering an area of approximately 20m by 10m, and was the location of the majority of artefacts recovered (n=18). The second deposit, Feature (20), was in very poor condition, being almost completely ploughed out. The deposit was very sparse and had a maximum depth of just 10mm, spread over an area measuring 3.9m by 2m. A third midden deposit was identified along the northern edge of the property next to what was interpreted as a small whare (House 3) and measured 5m by 4.1m. This was in marginally better condition and could be dated.

The ten fire scoops excavated were of two different types. Three circular scoops were clustered in the vicinity of the main midden at the southern end of the site and were probably simple cooking fires. This contrasted with the seven rectangular firescoops which had vertical edges and flat or uneven bases. These were all situated in proximity to the houses and to several linear rows of postholes which have been interpreted as drying or smoking racks. Therefore, they are thought to have been utilised for heating, and possibly for drying and smoking fish, shellfish or eels.

Ten of the excavated pits were large rectangular and typical storage structures. All bar one of those were clustered together on the northeastern side of a small knoll. These pits were primarily orientated in northeast to southwest fashion, apart from one which ran northwest to southeast. These pits had an average length of 3.7m, and an average width of 1.7m. They were, however, generally very shallow, with an average maximum depth of just 16cm. Ploughing and other farming activities clearly had an impact and indeed had smoothed off the top of the nearby small knoll. Seven of the pits had external drains running from the lowest corners, and these were found to be complemented with internal drains. Most of the pits appeared to have been abandoned and left to infill naturally.

Two features contrast with this and were filled with a relatively bright brownish yellow material that consisted of redeposited subsoil, consistent with a deliberate backfilling event. Furthermore, those two pits were arrayed on an alignment distinct from the remainder of the pit cluster. This evidence suggested a separate phase of utility, possibly just prior to the main occupation, although no datable material was recovered from the features to confirm this.

Five bin pits were situated in two separate areas. Two of the pits were located adjacent to the group of larger pits and three others located near the identified houses. These pits were quite small in size, with the average size of 1m by 0.6m and had a depth of around 30cm. Two of the bin pits near the houses were rectangular but two others were more rounded and were not unlike the deep,

straight-sided, round pits identified as rua kopiha by Campbell and Hudson (2011: 30) at the NRD site, R11/859.

There were several closely related alignments of postholes which were interpreted as small houses or whares. House 1 measured 5.1m (NW-SE) by 4.4m (NE-SW) defined by 29 postholes on all four sides. The favoured interpretation was that the structure faced towards the northwest with what is considered to be a porch structure at the northern end. An internal division is present at the southern end of the structure. An alternative is that the building was wider than deep, and opened to the northeast. In this version the structure would have had double internal lines of postholes. It is also possible that the building underwent repairs at some point during its lifespan. Many additional, shallow and truncated postholes, situated outside of what was considered to be the main structure were identified, and these may have been windbreaks or rack structures of some kind.

House 2 measured 4.8m (NW-SE) by 3.3m (NE-SW) and was defined by 22 postholes on all four sides. A large gap between postholes was present along the southwest facing wall. Many of these postholes were quite shallow. House 3 measured 3.8m (NE-SW) by 3.6m (NW-SE), was smaller but well defined by rows of postholes on all four sides and associated footing trenches.

Other posthole alignments were identified both in the immediate vicinity of the house structures and a further grouping situated just to the north of the houses. It is possible that these were drying or smoking racks, or a similar type of structure for consumables such as fish, shellfish or even eels. The lack of fishbone identified within the midden does not add any evidence to support this interpretation, although the paucity of bone may be explained by other factors. Some 16 features make up the main northern group of postholes. These were found to quite large in diameter (the average is 31cm), but shallow (the average was just 4.5cm).

Artefacts and Midden

A technological analysis of the stone artefacts collected from the site was completed by Joe Mills, with sourcing using XRF undertaken by Andrew McAlister of the University of Auckland. The assemblage comprised just 27 individual artefacts, consisting predominantly of obsidian (n=16), with smaller amounts of both chert (n=7), fine-grained stone (n=3), or greywacke (n=1). Technologically these were primarily fragments (broken or incomplete flakes, n=16), with flakes (n=8), a manuport, a single potential tool, and a single core also present. One artefact, most likely of Motutapu Greywacke, was a highly-polished adze flake. Ten of the obsidian artefacts were subjected to XRF which

identified three distinct sources. Five of the artefacts originated from Mayor Island, four from Great Barrier Island, and a single piece from Hahei. The lithic assemblage suggested that obsidian was used for butchering and manufacturing tasks, chert used as a tougher alternative to obsidian and for drill points, and the fine-grained stone was probably flaked off from the top of the butt portion of a moderately sized adze, although its actual function is not known.

Four 10 litre midden samples, all from relatively shallow contexts, were analysed for the project. Details of the processing are given in Farley and Clough (2015: 95ff). Identifiable shells were sorted and analysed by taxon (see Farley and Clough 2015: Tables 15-22 for additional information). In all four samples, cockle was the dominant species by a considerable margin. However, various gastropod species also appear to have made an important contribution to the assemblage. The majority of these species would have been collected from the mudflats or the muddy intertidal zone in close proximity to this site.

A more detailed analysis of the catchment zones for the shells obtained is shown in Figure 3 and muddy shore species account for at least 50% of the MNI in all samples. The next largest group is the other/unknown grouping, which is the result of having significant numbers classified into either operculum or the catchall gastropod species group. It is considered likely that many of these, such as mudsnails, would also fall into the muddy shore category if they were sufficiently whole to allow identification. This dominance points to the local riverine resources being the primary source of the shellfish, supplemented by some additional shellfish from the nearby harbour.

Samples from three firescoops with the greatest total weight of charcoal were selected for analysis by Dr. Rod Wallace at the University of Auckland. This was insufficient for a full palaeo-botanical analysis, as just 66 pieces were identified across the three samples. All the charcoal identified was from tree species, predominately Puriri, with smaller amounts of Rewarewa and Matai. This suggested that there was probably intact native bush in the immediate vicinity of the settlement during occupation. All three of the firescoops from which charcoal was extracted were dated.

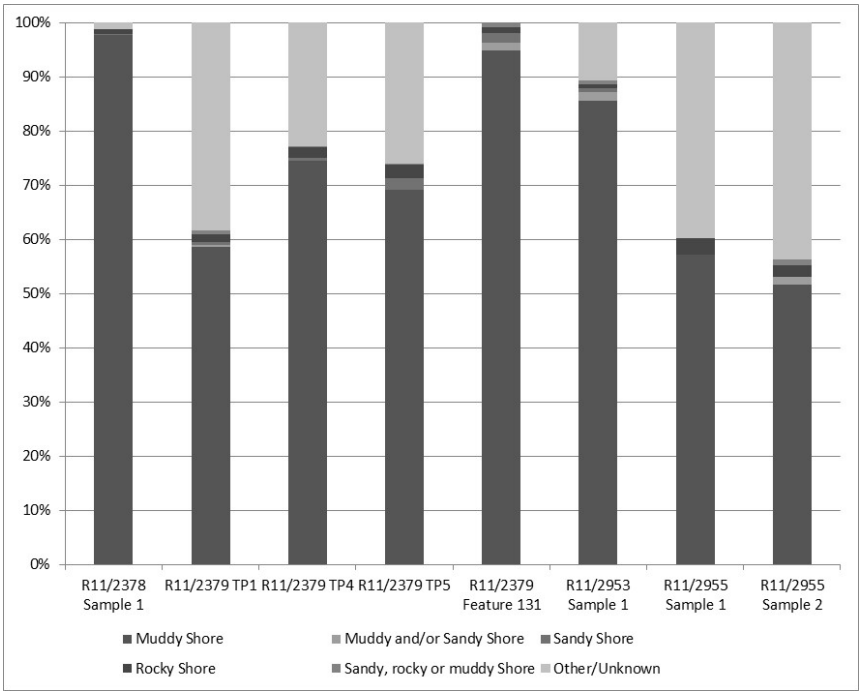

Figure 3. Sample environmental niche MNI as a percentage of the total sample environmental niche MNI.

Radiocarbon Dating

Five samples from R11/2379 and two from nearby small midden were submitted to the University of Waikato Radiocarbon Dating Laboratory for analysis Table 1 and Figure 4. The dates included samples from both charcoal (short-lived species) and cockle shell. The radiocarbon dates for R11/2379 suggest a pattern of occupation and reuse over the course of approximately 100 years in the 1500s AD (Figure 4). An early date, from Feature 36, indicates that there may have been an occupation towards the southern end from as early as the mid-14th century AD. One later date is suggestive of a later re-occupation of R11/2379 in the mid-18th century AD.

The results are comparable with the date from the NRD Site R11/859 (Campbell and Hudson 2011). As Figure 5 shows, the occupation around the Timberly Road site is mostly contemporary with the range found at R11/859 with the exception of the earliest date from R11/2379. The sites are not close together, but it would

less than a day to walk, or a few hours paddling, to travel between them, so they were clearly part of a connected contemporary landscape.

Table 1: Timberly Road radiocarbon dates.

Sample	Site	Feature	Material	Raw	Error	-1σ	1σ	-2σ	2σ
Wk40915	R11/2379	36	Charcoal	604	20	1329	1414	1322	1421
Wk40916	R11/2379	92	Charcoal	420	20	1458	1606	1450	1620
Wk40917	R11/2379	129	Charcoal	396	21	1464	1618	1457	1625
Wk40791	R11/2379	1	Shell	564	32	1677	1816	1641	1950
Wk40792	R11/2379	131	Shell	726	23	1524	1636	1480	1670
Wk40793	R11/2378	Sample 1	Shell	727	19	1524	1635	1480	1668
Wk40794	R11/2955	Sample 1	Shell	658	30	1567	1687	1503	1803

Discussion

The features excavated at R11/2379 suggest a small hamlet located on the headland dating to the late 15th to mid-16th century. It contained numerous structural features (houses, pits, firescoops, post and stake-holes), suggesting that several activities were carried out on the site. The activities probably included: fish and shellfish processing and drying; small living areas; and food storage. Cockle dominated the midden, followed by a range of gastropod species. The majority of the shellfish would have been easily accessible from the muddy coastal shore environment.

To better understand how the site was organised internally and within the landscape, a 3D model of the features was created with the help of Thomas MacDiarmid. The modern contour formed the basis of the model. Today the neighbouring creek is densely packed with mangrove which makes the site much less accessible by water, but overlaying the site with modern satellite imagery and removing mangroves from the image gives a much better indication for how the features of R11/2379 fit within the landscape (Figure 6). This view also shows how the hamlet had room to move up and down the creek bank over its length of occupation. This in part explains the lack of internal stratigraphy. The location was attractive but there was no real need to re-use areas previously occupied.

Modelling the structural features of the site (Figure 7) clearly shows how the larger rectangular pits were arrayed in the centre of the site with a northeasterly aspect, with internal and external drains running towards the creek to assist the removal of water. Their positioning does suggest that they were probably built at approximately the same time, or with new structures built while the others were still detectable. Most of the pit fills are relatively homogenous natural silt

accumulation but at least two of the pits looked as though they were deliberately infilled either when the site was abandoned or as part of the preparation for re-occupation of the site. The 3D model does suggest that all the features were active at the same time, although we appreciate this is unlikely.

As mentioned the firescoops were either circular scoops, with sloping sides, or rectangular, with vertical sides. The circular features were concentrated together with the large midden and were probably cooking fires, while the rectangular ones were next to the structures and probably used for warmth or as part of drying rack features (Figures 7 & 8).

The three groups of postholes were interpreted as houses with the largest near the highest point of the site (Figure 7). The other two were positioned down the slope to the north of this structure, and each was successively smaller than the last. House 3 (Figure 8), the smallest, was also the best preserved with some post and slot holes present. All of these features were filled with a light grey silt, indicating that either the posts rotted away in position following abandonment or that they were demolished and silt accumulated in the holes by natural processes.

Other postholes have been interpreted as drying racks (Figure 8) for use in the preservation and preparation of food or net drying etc. There is no specific archaeological evidence for this. Although such a reconstruction goes beyond the excavated features, a review of historical imagery clearly shows these sorts of structures in later Maori sites (see e.g., Davidson 1984:140). We considered this interpretation important because it provided the appropriate context for the features we were more certain about, and also a more realistic portrayal of the features likely to have been on the site.

Conclusions

R11/2379 represented the location of a shifting occupation along the Pukaki Creek. The earliest date suggests use from the late 14th century, although this was from near the southern excavation boundary and further elements may remain in the reserve. The main settlement appears to have established during the 16th century. The site shows a typical pattern of functional differentiation with housing, food storage and midden in clusters. There was little stratigraphy and little evidence of parts of the site being re-used; the pattern suggested shifting occupation. The exception was the possible rebuilding of House 1, although this might indicate changes over a very short time scale. The pits were lined up in the centre of the site with no cross-over at all to indicate that they were likely to be roughly contemporary or used in sequence.

The subsequent 18th century AD date indicates a return to the site, but whether this was on the same scale as the earlier occupation but centred elsewhere is not known. The overall spatial pattern of archaeological sites in the local catchment points to Maori groups occupying the coastline probably on a seasonal basis, shifting locations as needed.

R11/2379 therefore appeared to be mid-size habitation site, larger than the majority of small campsites in the area, but probably only for a small group, perhaps one or two families at a time. Smaller sites near the river's edge, such as R11/2378 (Figures 1 & 5) were occupied at much the same time as the main occupation but were more likely temporary camp sites. Interestingly, the location of site would have provided no defensive options with the pre-mangrove waters allowing rapid access by canoe, and the flat terrain easy to cross by foot. Despite its vulnerability from raiding, the pits demonstrate that it was worthwhile bringing food to the site for longer periods, from the gardens either close to the settlement or perhaps further away in more fertile soils, without much fear of loss of the resource.

The shifting pattern of settlement also shows how the populations probably dispersed into smaller family or whanau based units across the region but then on occasion coalesced at periodically forming the larger villages found near the coast and cones. The fluid nature of this pattern is challenging to track in the region, with shifting population groups, seasonal and annual settlement cycles and contested boundaries all part of the story.

Evidence from the obsidian and other lithics suggest both an awareness of local resources, such as chert, and integration within a larger regional exchange network. This is not surprising but confirmation is useful. The site also appears to have been occupied at much the same time as R11/859 but exhibits a more limited range of features than those excavated at that site. No burials were identified, and one deep circular pit was observed that may be similar to those Campbell and Hudson (2011:112) described as rua kopiha. The difference in storage structures is intriguing if not well understood at this point.

The results also show that despite the heavily ploughing in the area, a reconstruction of much of the organisation of the site has been possible. The models combined archaeological, environmental and ethnographic information to create an interpretation of R11/2379 despite the heavily ploughing and loss of the upper surfaces of the archaeological evidence. This represents a valuable starting point for future work in the region.

Acknowledgements

Many thanks to Paul Lewis and the earthmoving team from Dempsey Wood, who carried out the mechanical excavation with great skill. To Peter Donovan from Auckland International Airport Limited (AIAL), Alastair Kent-Johnston of Harrison Grierson and other members of the project management team for their role in enabling the excavations to be undertaken. We would also like to thank the excavation and monitoring team, which consisted of Bernie Larsen, Elinor Sturrock, Jen Low, and Joss Piper-Jarrett. Recognition is also due to those who assisted in the processing and analysis of the materials: Laura Dawson, Bernie Larsen, Jen Low, Joe Mills, Andrew McAlister, and Dr Rod Wallace. The 3D models of the site were created skilfully by Thomas MacDiarmid. We are grateful to Nigel Denny of Te Akitai Waiohua and Ed Ashby of Te Kawerau Iwi Tribal Authority for reviewing the original work.

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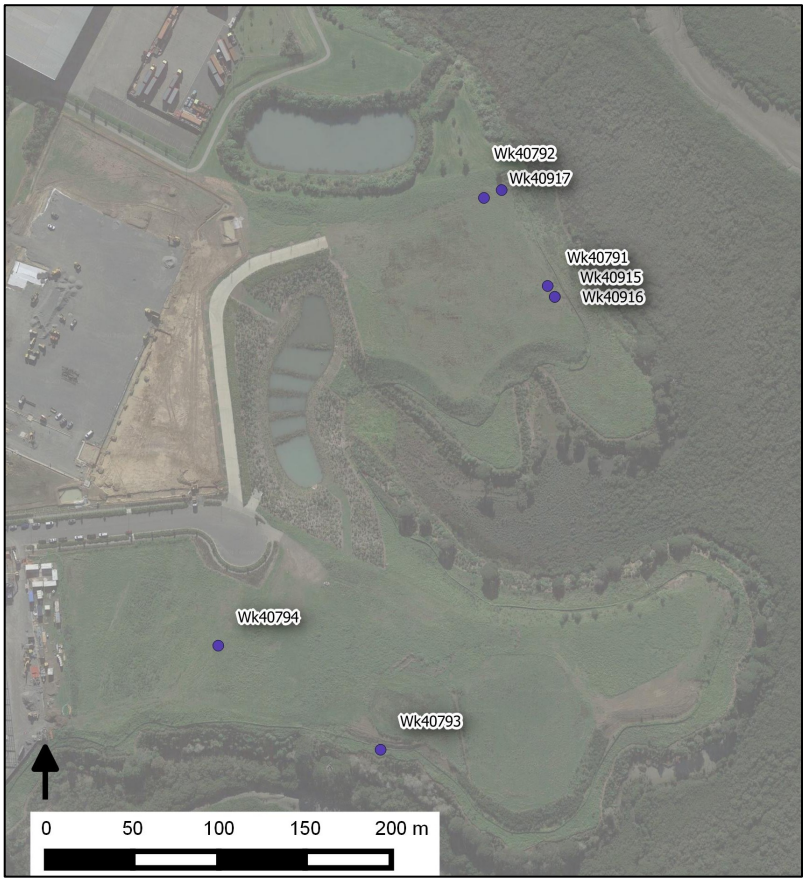

Figure 4. Map showing the location of radiocarbon dates from the Timberly Rd project.

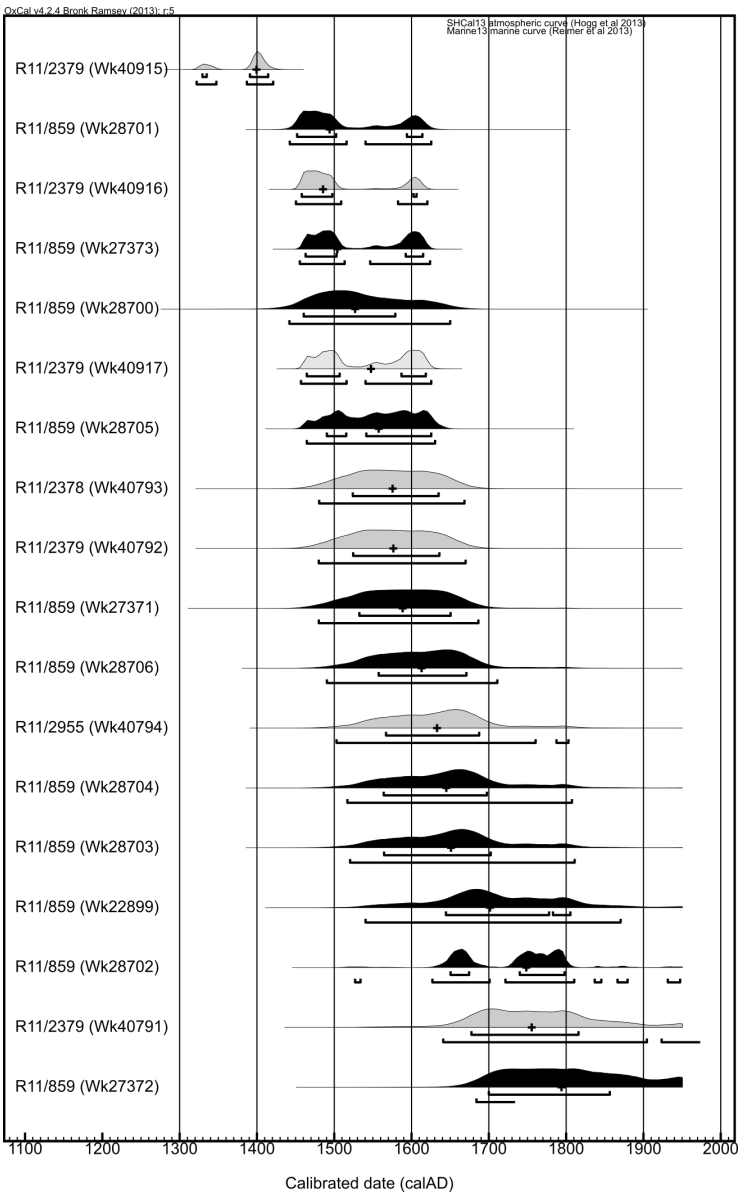

Figure 5. Radiocarbon dates from Timberly Rd (grey) compared with dates from R11/859 (black).

Figure 6. Context of 3D reconstruction of R11/2379 within the broader modern landscape of the project area

Figure 7. 3D reconstruction of R11/2379 (looking SE across the site) with House 1-3 (going right to left) in the foreground shown in early morning light (Thomas MacDiarmid and Simon Bickler).

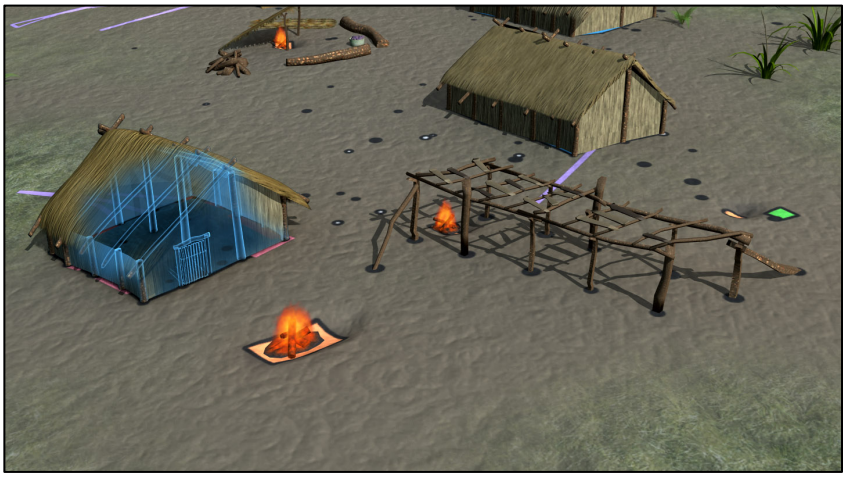

Figure 8. 3D model of northern part of R11/2379 showing archaeological features (postholes, fire scoops) and possible interpretation of House 3 on the left and House 2 on the right background (Thomas MacDiarmid and Simon Bickler).

Figure 9. Site R11/2379 during excavation.