

**ARCHAEOLOGICAL INVESTIGATIONS OF SITE  
R11/2125, 63 KIWI ESPLANADE,  
MANGERE BRIDGE  
(HNZPTA AUTHORITY 2018/046)**

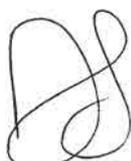
**REPORT TO  
HERITAGE NEW ZEALAND POUHERE TAONGA  
AND  
HEMI DALE AND BARBARA ALAALATOA**

**DANIELLE TRILFORD**

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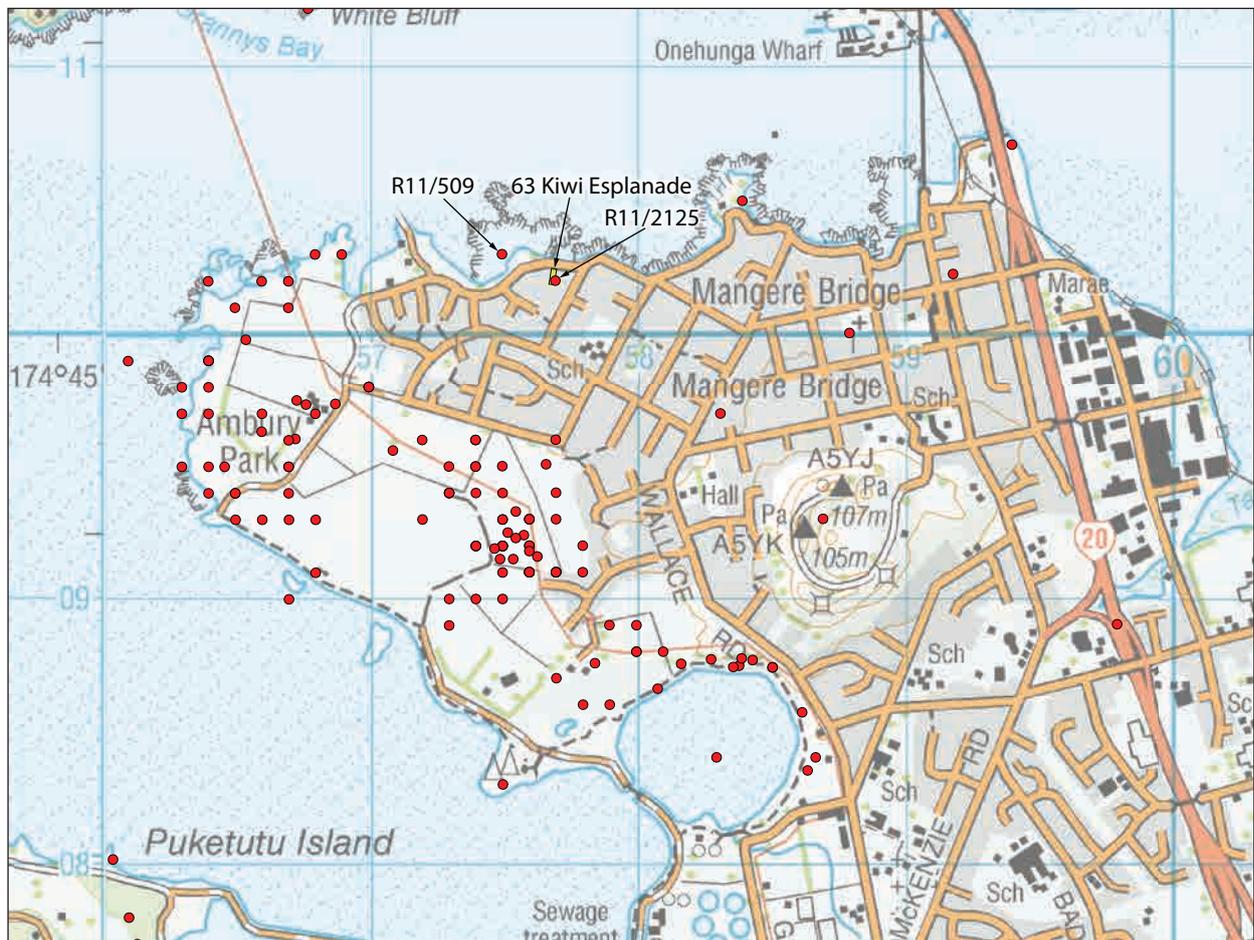
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# ARCHAEOLOGICAL INVESTIGATIONS OF SITE R11/2125, 63 KIWI ESPLANADE, MANGERE BRIDGE (HNZPTA AUTHORITY 2018/046)

DANIELLE TRILFORD

Hemi Dale and Barbara Alaalatoa are constructing a house at 63 Kiwi Esplanade, Mangere Bridge (Lot 10 DP 17468). During the earthworks, a midden deposit was exposed, which is part of an archaeological site recorded as R11/2125 in the New Zealand Archaeological Association (NZAA) Site Recording Scheme (SRS). The midden spans across several properties and into the esplanade reserve on the opposite side of the road (Trilford 2017) The full extent of the midden is not clear, but it is visible intermittently along the foreshore in the Esplanade Reserve to the north of Kiwi Esplanade over around 350 m and 75 m inland at 63 Kiwi Esplanade (Figure 2). It seems probable that this extensive site represents several periods of shell deposition but the relationships between different parts of the site remain unknown. The condition of the site is also unclear, but it is likely to survive well in much of the Esplanade. This extent incorporates recorded site R11/509 – both recorded sites are part of the same site. An archaeological assessment was completed in support

*1. Location 63 Kiwi Esplanade showing recorded archaeological sites in the area of Mangere Bridge.*





2. Location of 63 Kiwi Esplanade showing the visible midden R11/2125 (darker yellow) and potential extent (lighter yellow). The house on the property has been moved to the rear of the section and the new house is being built on the front of the section.

of archaeological authority applications to Heritage New Zealand Pouhere Taonga (HNZPT) to commence the works at the property, and Archaeological authority 2018/046 was granted. Archaeological investigation of the site was undertaken by Danielle Trilford from 29 August to 4 September 2017. The existing midden exposure was investigated, and no new archaeological contexts or remaining intact sub-surface deposits were found.

### Archaeological background

While there is a dense pre-European Maori archaeological landscape recorded at Ambury Farm Park (around 100 sites are recorded here and at Mangere Lagoon), and the suburb of Mangere Bridge is dominated by Te Pane o Mataaho / Mangere Mountain, an extensive pa site on the volcanic cone of Mangere Mountain, few archaeological sites have been recorded elsewhere in Mangere Bridge. Prior to urban development it is likely that the archaeological landscape was as dense as it is at Ambury Farm Park but many sites have been destroyed or extensively modified and obscured by urban development since the early-mid-20th century.

Site R11/2125 was found in 2001 by Dianne Harlow during footpath works across the road from 63 Kiwi Esplanade. Dianne Harlow explained the deposits were “small pieces of rock with crushed and whole cockle shells... in a dark soil matrix. Depth of deposit approx. 30cm” and similar descriptions of other deposits

with cockle and oyster inside a burnt matrix. A bulk sample of the midden was taken but there are no results available (D. Harlow pers. Comm. 2017).

The only other site close by is R11/509, a patchy midden recorded on the foreshore in 1980 about 200 m to the north west. It is not clear what the relationship is between the two sites but there is a good chance they are be part of the same larger site or site complex.

### *Ambury Farm Park*

The stone fields sites of South Auckland are nationally significant archaeological sites and have figured heavily in discussions of pre-European Maori gardening. As little as 200 of the original 3000 or so hectares of stone fields in the Auckland Volcanic field may survive, mostly at Otuataua, Matukutureia (McLaughlin's Mountain), Puketutu Island and Ambury Farm Park, all on or near the Manukau Harbour. Maungawhau (Mt Eden), Maungarei (Mt Wellington), Maungakeikie (One Tree Hill) and Owairaka (Mt Albert), among other cones, also had associated stone fields but these have been quarried away or built over. Some small scale stoneworks survive in East Tamaki and on Motukorea (Brown's Island) in the Hauraki Gulf. The surviving stone fields have all been described and mapped to greater or lesser degrees and some archaeological excavations have been carried out, but analysis and reporting have been of a decidedly mixed standard.

Rickard et al. (1983) noted that Ambury Farm Park has long been in public ownership and has received a great deal of archaeological attention. The stone field is associated with Mangere Mountain, though modern housing has destroyed features between the mountain and the remaining stoneworks. Rickard et al. mapped the surface stone alignments and mounds, which they generally interpreted as evidence of housing and horticulture. There are dense middens adjacent to the harbour and shell is commonly present in the garden areas where it is presumed to have been used as a soil additive or mulch, though it may just be the result of site occupation. Other parts of the park are free of surface stone and so there are no stone features. They noted that it was, therefore, unclear how or if the patterns observable in the stone alignments extend to the rest of the park.

Excavations at Ambury Farm Park, sites R11/1123 and R11/1129, in 1982 (Lilburn 1982) significantly modified this interpretation. Two areas previously interpreted as stone structures were shown to be natural features; in another there was evidence of limited clearance of stone to create gardens.

Brassey and Adds (1983) also excavated site R11/736 at Ambury Farm Park which, prior to excavation, had been interpreted as a small coastal settlement with shell midden, house sites, pits and a possible stone wall and crop marks. The midden was shown to be European in origin and many of the features previously recorded were shown to be natural. Pre-European middens were found that were not previously visible on the surface, one of which was associated with an obsidian working floor containing 760 obsidian flakes, of which roughly a third had clearly been used and another third may have been used. The midden was almost entirely cockle (*Austrovenus stutchburyi*) with a few oyster and occasional examples of other species. No fish bone was recovered from the middens. No structural evidence suggesting permanent occupation was found and the site is interpreted as being primarily used for the exploitation of marine resources. Occupation was temporary and not associated with gardening.

### *The Tawhiao cottage*

A late 19th century cottage at 31 Wallace Road was built for King Tawhiao in the early 1890s (recorded as site R11/2535), on land confiscated during the Waikato

Wars but returned to Tawhiao in 1890. It was excavated by CFG Heritage in 2012 (Campbell et al. 2013; Campbell 2016). This was a small, four room cottage otherwise typical of late 19th century houses. The most notable feature of the excavation was a midden of shell and fishbone beneath the house that also contained sheep, pig and cattle bone along with smaller quantities of chicken, turkey and rabbit. This was interpreted as the remains of a feast given to remove the tapu of house building.

### Methodology

Archaeological monitoring of the site was undertaken by Danielle Trilford of CFG Heritage from 28 August until 4 September 2017. The earthworks were undertaken with a hydraulic digger and works ceased while any investigation by the archaeologist was occurring. The existing exposed feature along the north of the property was hand excavated for a sample and photographed. All spatial information was uploaded to the project GIS. A 10 litre bulk sample of the midden exposed was taken for analysis.

### Archaeology

During the initial unmonitored earthworks midden was exposed along the north of the property (Figure 3) (Trilford 2017). Bulk samples were recovered from this midden. The shell in Feature 1 is partly intact and lying within a moderately consolidated moist, brown clay, sitting above the natural scoria base layer. The midden continues southward up the east side of the property, probably spanning into 62 Kiwi Esplanade. The thickest portion of the midden is at the northern, road boundary of the property, ranging between 250–300 mm thick; it extends about 20 m to the south becoming progressively shallower. Probing along the front of 62 and 61 Kiwi Esplanade detected a midden or gravel at the same depth to that recorded by Dianne Harlow when the site was first recorded, and it is visible intermittently along the foreshore for at least 350 m in the Esplanade north of the road, where it is



3. The in situ midden at the north of the property.



4. Fill of a trench during service relocation, showing fill including crushed shell mixed with plastic and wiring.

also visible beneath trees and around the bus stop. It is likely the site is larger, but this cannot be confirmed without further archaeological investigation.

The archaeological monitoring did not expose any new archaeology. The site damage from the unmonitored works was more extensive than initially recorded, and most monitored earthworks was excavating into recently deposited gravels. Most of the site damage is because of the recent unmonitored earthworks relating to the new house, however some is also attributed to due to earlier unrecorded earthworks for services on the property for the original house.

The mixing of heavily crushed shell within areas which were already worked on showed the site probably extended across at least the northern half of the property. There was evidence of the midden probably existing on the west and south of the property (into 64 Kiwi Esplanade), within an older service trench fill up the western profile of the property to showing sparse crushed shell (Figure 4). The trench fill also included plastic and wiring and was not sampled.

### Midden analysis

A 10 litre bulk sample from the midden was analysed (Table 2). The midden was washed and analysed using conventional methods, with species identification based on Morley (2006).

Table 1 provides the weight of the sample from Feature 1 dried before sieving, and the weight after the shell was washed and dried. 66.8% of the weight was lost by sieving. This indicates the shell midden was probably in a disturbed context, which is also supported by the high percentage of unidentifiable shell fragments; of the 2562 g total weight of shell, 2160 g or 84% is unidentifiable shell residue. The disturbance is likely to have been caused by earlier unrecorded residential development before the current works, such as service trenching, or crushing and compacting from vehicles regularly driving on the area. While the deposit is disturbed it remains in situ elsewhere within the recorded bounds of R11/2125. Less than 1 g of bone was present in the midden. No charcoal or material culture was in the sample.

Table 2 shows the midden was dominated by tuangi (*Austrovenus stutchburyi*), by both number and weight, while most of the rest of the shells were soft shore harbour or estuarine species caught at mid or low tide, the same environment as tuangi, indicating they were largely a bycatch. Tuangi valves were small (average 0.59 g, suggesting that people were probably mass harvesting tuangi using methods such as dredging, instead of hand picking single large shells. Also present in the sample are some rocky and sandy shore species (*Buccinulum vittatum* and *Mactra discors*) but at lower proportions. While the sample suggests people were gathering shellfish in these other environments, they were not doing so at the same intensity as they were when gathering shellfish within the Manukau Harbour.

These results are similar to the midden observations in the public walkway in front of 61 Kiwi Esplanade in 2001. Harlow's SRS update explains some of the samples were "scallop... crushed cockle shell inside a dark matrix... depth of approx. 30 cm." The samples from the 2001 work were not analysed to compare further, but the midden from this investigation matches the midden Harlow exposed.

### Fish

A small assemblage of fish bone was obtained from the sample. Three species were identified, all from vertebrae: gurnard (*Chelidonichthys kumu*), yellow-eyed mullet (*Aldrichetta forsteri*) and blue maomao (*Scorpius violaceus*). These species could all have been caught in the Manukau Harbour. Yellow-eyed mullet and blue maomao have small mouths – they will take a small hook but were more likely to have been netted by pre-European Maori, before the advent of steel hooks. Gurnard are caught on hooks and can also be netted. Blue maomao is a reef dweller, gurnard prefers open waters while yellow-eyed mullet can be found in a range of habitats (Paul 2000).

Volume (L)	Dry weight (g)	Sieved weight (g)	% loss
10	9760	3173	66.8%

Table 1. Metric statistics of midden sample from Feature 1.

Common name	Maori name	Species	MNI	Weight (g)	Environment	Tidal depth
Tuangi	Tuangi	<i>Austrovenus stutchburyi</i>	278	329	Harbour / estuarine	Mid to low
Pipi	Pipi	<i>Paphies australis</i>	3	3	Harbour / estuarine	Mid to low
Scallop	Tipa	<i>Pecten novaezealandiae</i>	3	38	Varies	Low to deep
Mudsnail	Unknown	<i>Amphibola crenata</i>	7	6	Harbour / estuarine	High
Horn shell	Huamutu	<i>Zeacumantus lutulentus</i>	7	2	Harbour / estuarine	Mid
Large trough shell	Kuhakuha	<i>Mactra discors</i>	12	7	Sandy shore	Low to deep
Siphon whelk	Pupu koiho	<i>Penion sulcatus</i>	1	14	Harbour / estuarine	Low to deep
Lined whelk	Huamutu	<i>Buccinulum vittatum</i>	10	18	Rocky shore	Mid
Residue				2183		
Total			321	2562		

Table 2. Summary of shellfish species identified at Feature 1, environment and tidal depth data are based from Morley (2006) and Powell (1961), Maori name are based on Parkinson (1999).

## Chronology

A sample of shell from the midden was submitted to the Radiocarbon Dating Laboratory at the University of Waikato. The dates suggest people occupied the site at some stage between the mid-15th and mid-17th century, and most likely in the first 100 years of that period (Table 3). Similar mid-15th to mid-16th century dates are recorded around the Manukau Harbour are recorded at R11/2964 on Naylor's Drive (Phillips 2015), R11/1930 on a small peninsular jutting into Pukaki Creek (Foster 2000), R11/2379 at Timberly Road (Farley et al. 2015), and in storage pits at Phase 1 in areas of the NRD site R11/859 (Campbell and Harris 2011).

Lab No.	$\delta^{13}\text{C}$	CRA BP	cal AD 68%	cal AD 95%
Wk 46391	$0.8 \pm 0.3 \text{ ‰}$	$785 \pm 31 \text{ BP}$	1460–1571	1433– 646

Table 3. Radiocarbon date.

## Discussion and conclusion

The investigation has shown that people were collecting harbour and sandy shore shellfish and fishing, probably with nets, from within and around the Manukau Harbour between the 15th and 17th centuries. The shellfish, dominated by tuangi, are similar to other reported assemblages from around the Manukau Harbour (Ambury Farm Park, Brassey and Adds 1983; R11/1930, Foster 2000; Timberly Road, Farley et al. 2015; the NRD site, Campbell 2011; 91 Naylor's Drive, Phillips 2015).

The radiocarbon dates, indicating occupation between the mid-15th to mid-17th century, are also similar to the dates from these other reported sites (R11/1930, Foster 2000; Timberly Road, Farley et al. 2015; the NRD site, Campbell 2011; 91 Naylor's Drive, Phillips 2015), though Ambury Farm Park is not well dated (Brassey and Adds 1983).

The full site extent of the midden is unclear; it extends at least 50 m along the foreshore and 30 m back from the foreshore, and is likely to include fire scoops, and post holes for structures and drying racks. The condition of the midden is uncertain but much is likely to survive in better condition than at 63 Kiwi esplanade, particularly in the Esplanade Reserve. Also, the relationships between the reported excavated sites and the wider landscape remain unexplored.

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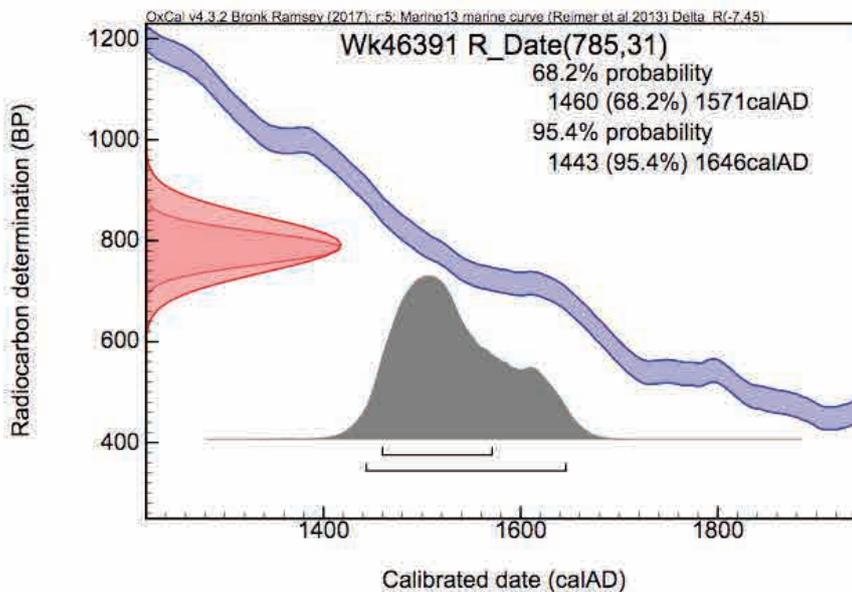
## Radiocarbon Dating Laboratory

### Report on Radiocarbon Age Determination for Wk- 46391

<b>Submitter</b>	M Campbell
<b>Submitter's Code</b>	R11/2125, 63 Kiwi Esplanade Avenue midden
<b>Site &amp; Location</b>	63 Kiwi Esplanade Avenue, Mangere Bridge., New Zealand
<b>Sample Material</b>	Austrovenus stutchburyi
<b>Physical Pretreatment</b>	Surfaces cleaned. Washed in an ultrasonic bath. Tested for recrystallization: aragonite.
<b>Chemical Pretreatment</b>	Sample acid washed using 2 M dil. HCl for 120 seconds, rinsed and dried.

$\delta^{13}\text{C}$	$0.8 \pm 0.3 \text{ ‰}$ (CRDS)
$\text{D}^{14}\text{C}$	$-93.1 \pm 3.5 \text{ ‰}$
$\text{F}^{14}\text{C}\%$	$90.7 \pm 0.4 \%$
<b>Result</b>	<b>785 ± 31 BP</b>

#### Comments



- Explanation of the calibrated Oxcal plots can be found at the Oxford Radiocarbon Accelerator Unit's calibration web pages (<http://c14.arch.ox.ac.uk/embed.php?File=explanation.php>)
- Result is *Conventional Age or Percent Modern Carbon (pMC)* following Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier.
- The isotopic fractionation,  $\delta^{13}\text{C}$ , is expressed as ‰ wrt PDB and is measured on sample  $\text{CO}_2$ .
- $\text{F}^{14}\text{C}\%$  is also known as *Percent Modern Carbon (pMC)*.

*AC Hogg*