

SITE O04/1022 SECTION 18 INVESTIGATION, TAIPA, FAR NORTH



REPORT TO
THE NEW ZEALAND HISTORIC PLACES TRUST
AND
FAR NORTH DISTRICT COUNCIL

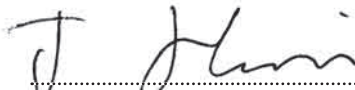
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SITE O04/1022 SECTION 18

INVESTIGATION, TAIPA, FAR NORTH

JADEN HARRIS

During the construction of stormwater outfall at Taipa, just south of Taipa bridge (SH10) on the west bank of the Taipa River east of Oruru Road, an unrecorded shell midden was exposed by heavy machinery operated by Transfield Services under contract to the Far North District Council (FNDC). This was brought to the attention of the Historic Places Trust (HPT) when HPT officers drove by and observed the damage. HPT then requested a damage assessment of the midden. This assessment was carried out by Matthew Campbell of CFG Heritage Ltd on 9 July 2009 (Campbell 2009). The site was recorded in the New Zealand Archaeological Association Site Recording Scheme as site O04/1020 and it was recommended that a small scale investigation of the site be undertaken in mitigation of the damage. The investigation was carried out by archaeologist Jaden Harris on 27 January 2010 under authority 2010/203 issued by the New Zealand Historic Places Trust under Section 18 of the Historic Places Act 1993.

Archaeological Background

Several archaeological sites are recorded in close vicinity to Taipa Bridge and many more around Taipa Bay. While site O04/1022 in itself is not of high significance, its importance is as part of the wider archaeological landscape. Sites in Taipa Bay range from small middens to pit and terrace sites and pa on the coastal headlands, indicating substantial pre-European Maori occupation of the area. Previous archaeological work in Taipa includes the investigation of midden site (O04/438) east of the river and just south of SH10 (Johnson 1988) and monitoring and investigation of two midden sites (O04/813 and O04/814) located just back from the beach on the west side of the river (Bruce 2004). Investigation at site O04/438 was limited to a 3 x 0.5 m trench through a midden exposed by the development of a commercial nursery. Excavation revealed four distinct layers of shell midden. The midden composition in all layers was dominated by pipi (*Paphies australis*) and cockle (*Austrovenus stutchburyi*) with occasional other intertidal mudflat species. The site was interpreted as representing continuous short term prehistoric occupation (Johnson 1988: 2). Sites O04/813 and O04/814 were investigated as part of a residential subdivision development. The sites as originally recorded comprised four small scatters of midden within the area of the development. Investigation of both sites revealed that the middens had been badly disturbed by previous 20th century developments including use of the area as a WWII camp and later a holiday camp. Analysis of small representative 'grab' samples from prehistoric midden contexts showed the main species to be pipi and cockle, with a few tuatua (*Paphies subtrian-gulata*). No context was secure enough to obtain a sample for radiocarbon dating. More recently an authority was granted to modify or destroy several midden sites for the construction of a seawall (O04/403, O04/404, O04/405, O04/406, O04/407 and O04/427). This construction work has been completed but the archaeological report is not yet available.

The picture of prehistoric occupation for Taipa from the limited archaeological record available is of numerous small midden sites which, although only occupied for a short term individually, together represent continuity of occupation of the wider landscape.



1. Location of site O04/1022 and other archaeological sites in Taipa Bay.

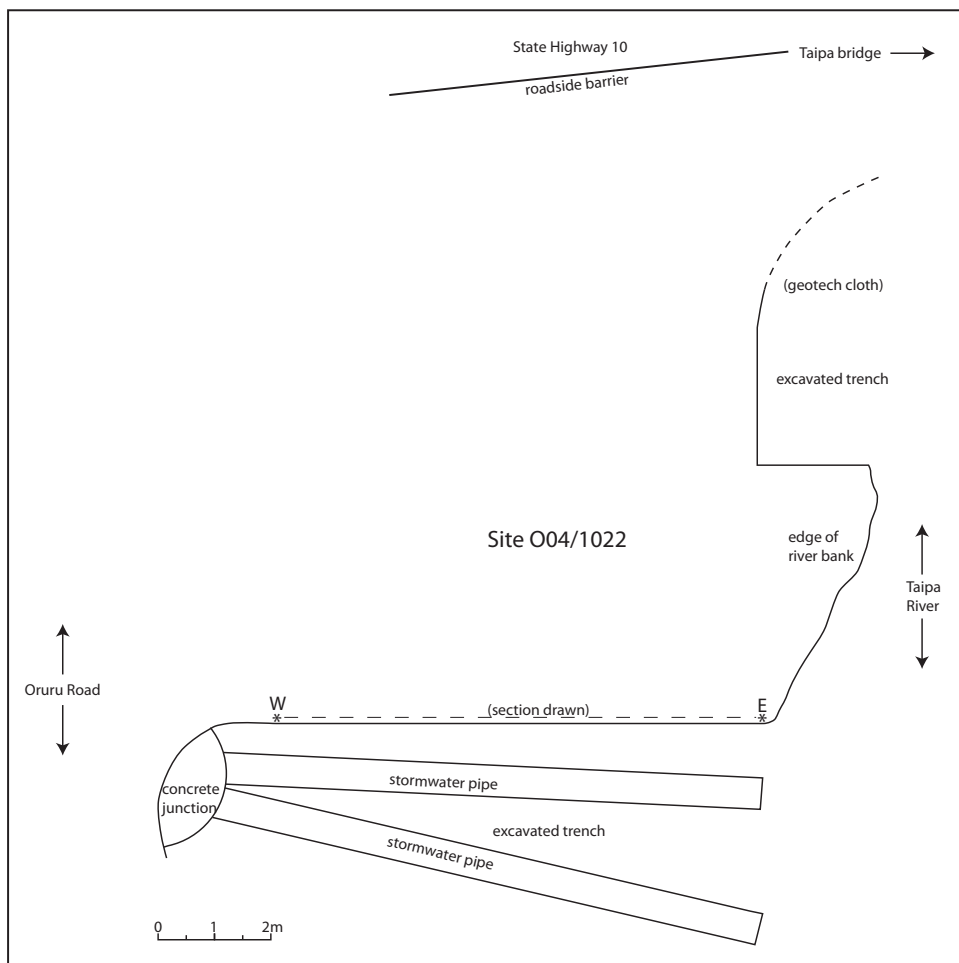


2. General view of site O04/1022 looking towards Taipa bridge, showing construction trench in foreground.

Investigation

The primary objective of the investigation was to characterise the midden components and obtain a radiocarbon date for the site in mitigation of damage caused by earthworks. The research strategy included provision for taking at least two bulk midden samples for analysis.

The midden is located on the west bank of the Taipa River immediately on the south, upriver side of the bridge and is bounded on the inland side by Oruru Road, which runs parallel to the river. The original extent of the site is not known as historic developments associated with Oruru Road and Taipa Bridge are likely to have damaged or destroyed portions of the site in the past. The earthworks associated with the present damage involved two trenches, one directly beside the abutment for the bridge and the other approximately 5 m south for the installation of a large 2500 mm diameter concrete junction on the edge of Oruru Road with three 550 mm diameter concrete stormwater pipes leading out to the edge of the river bank. The southern trench was approximately 9 m long and midden was exposed in its northern profile from the river's edge back towards Oruru Road for a length of 8.5 m. No midden or other archaeological evidence was visible in the southern profile of the trench and it would seem that the site did not originally extend this far. The second trench closer to the bridge had been partly backfilled and covered with geotech cloth, with midden only visible in the south section. How far the midden may have originally extended back towards the bridge or under the road is not known



3. Plan of site O04/1022 showing excavated trenches and location of section drawing.

and in any event it is likely to have been destroyed by these works. Between the two trenches the midden is continuous and can be seen exposed in the riverbank.

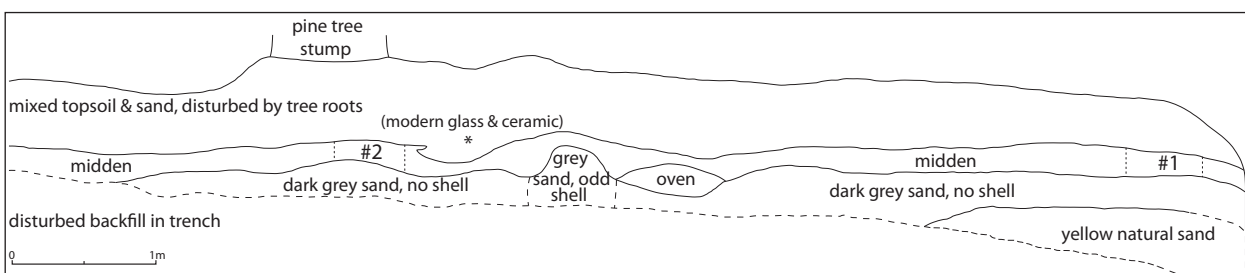
A measured plan of the damaged site was made by tape (Figure 3). To minimise any further damage to the site, excavation was limited to the already exposed section in the southern trench. For much of the length of the section the midden was penetrated by pine tree roots, clearly visible in Figure 4. To record the exposed midden in detail as many roots as possible were cut away and the face of the section cleaned down by trowel and spade. The section was then photographed and drawn. Finally two ten litre bulk midden samples were taken, one from a 500 mm section of the midden at the east end where it was less affected by roots and one from the west end where the midden was disturbed by roots but slightly denser. The location of the two samples is marked on Figure 5.

The midden lens ranged from 100–250 mm in depth and the shell was not particularly dense. The matrix the midden was in was dark grey charcoal stained sand with shell becoming sparser towards the western end of the trench. Overlying the midden was a mixed layer of beach sand and topsoil up to half a metre or more thick. This material appears to have been dumped on the midden as fill, possibly to level the site. An amber quart size beer bottle base and fragments of plain ceramic observed in the section at a depth of 500 mm below the surface date to around the middle of the 20th century, which gives an indication of when fill dumping may have taken place. In any event a large pine tree stump on the site indicates that the fill had been in place for at least 20–25 years.

The main shell species observed in the midden were pipi (*Paphies australis*), cockle (*Austrovenus stutchburyi*) and tuatua (*Paphies subtriangulata*), which were roughly the same species observed in natural shell deposits on the edge of the river. Pipi and cockle prefer more sheltered environments such as the mouth of the Taipa River, while tuatua favour more open beaches. Venus shells (*Dosinia* sp.) were also present by the river but were not observed in the midden. The shell in the midden was not dense and contained a large proportion of sand and soil, with occasional small pieces of rock and ovenstone.

4 (top). Composite photograph of the east end of the midden section, showing less disturbed deposit towards the river's edge.

5 (bottom). Section drawing of the north profile of the southern trench.





6. Oven feature at the base of the midden (scales 1 m and 250 mm).

Roughly in the middle of the exposed section at the base of the cultural deposit was an earth oven (Figure 6). While the feature was partly obscured by large pine tree roots the oven measured 700 mm long by 200 mm deep. The matrix of the oven was noticeably darker and contained a high proportion of fire cracked rocks and charcoal in its fill, especially towards the base. The shell in the oven also showed signs of burning and was more fragmented than elsewhere.

Below the midden the sand was a similar dark grey matrix to the midden but contained no shell. However on the west side of the oven feature the sand was slightly lighter and did contain the odd fragment of shell, possibly as a result of sand dug out to form the oven. Underlying the whole was clean yellow sand, which was only exposed in the east (riverbank) edge of the trench. At the west end the base of the trench did not extend to the clean natural sand.

Midden Analysis

Methodology

The two bulk ten litre midden samples were processed and analysed using a methodology developed by CFG Heritage. The methodology is designed to provide a greater understanding of how middens are built up and the processes which effect their preservation. A standardised approach also ensures that samples from different sites are comparable and the resulting data can be used as the basis for further research questions. The samples were air dried, weighed, wet sieved through a 6 mm screen and redried. Samples were then sorted following standard archaeological procedure. The diagnostic portions of each shell type present were separated out and counted to give a MNI (minimum number of specimens) for each species. For bivalves this was achieved by counting the number of hinges and whole valves and dividing the total by two. For gastropods the greater number of shells and columellas, or operculums was taken as the MNI. All diagnostic shell for each species was weighed. Charcoal, stone and any faunal bone was separated out and weighed but not counted. Finally the residue (which consisted mainly of non-diagnostic shell fragments) from each sample was weighed.

Three basic statistics can be calculated from the resulting measures: dry weight/volume (g/l), dry sieved weight/volume (g/l) and weight loss through sieving (as a percentage). These statistics are intended to quantify the density of the midden, that is, how much material there is in the sample and how much of it is shell. Weight and the MNI for shell species can also be used to calculate the MNI per gram (MNI/g) to express the degree of fragmentation of different shell species within the sample.

Results

Analysis of the midden samples confirmed the initial observations that the shell was not particularly dense and that the main species were pipi and cockle. From both samples the percentage weight loss is relatively high, indicating that a significant proportion of the midden was made up of sand and soil. The samples contained few other inclusions apart from ovenstones. Sample 1 was from a section of midden that had far less root damage than Sample 2 and the shell was less fragmented and in better condition.

The species composition from both samples is relatively similar with some minor variations. Pipi and cockle are the most common species and would have been readily harvested from the river in the vicinity of the site. The tuatua and fragments of scallop shell in Sample 2 indicate that the more open beaches around Taipa Bay were also utilised. Interestingly no tuatua were identified from Sample 1 which illustrates that the build-up of a midden was not a homogenous process but rather the result of a series of related events over a period of time. The shallow depth of the midden and the small size of the site suggest casual occupation for only a brief period.

Context	Dry weight (g)	Sieved weight (g)	Dry wt/vol (g/l)	Sieved wt/vol (g/l)	% loss (weight)	Stone (g)
# 1	13850	2820	1385	282	80	673
# 2	12260	2289	1226	228.9	81	147

Table 1. Volume and weight data for midden samples.

Context	Pipi (<i>Paphies Australis</i>)	Cockle (<i>Austrovenus stutchburyi</i>)	Tuatua (<i>Paphies subtriangulata</i>)	Venus shell (<i>Dosimia</i> sp.)	Scallop (<i>Pectin novaezelandiae</i>)	Miscellaneous gastropod	Total MNI	Total MNI/g
# 1	664	288		1		6	959	0.449
# 2	677	151	9		*	6	843	0.394

* no diagnostic fragments present

Table 2. Shellfish species data for midden samples by MNI.

Faunal Analysis

The only faunal remains collected were two small samples of fishbone separated out during the processing of the midden samples. Eight pieces of non-diagnostic fishbone were found in Sample 1 and 28 from Sample 2, one of which was identified as part of a snapper jaw (*Pagrus auratus*).

Chronology

One sample of pipi shell from Sample 1 was submitted to the University of Waikato Radiocarbon Lab for dating. The date obtained from the sample gave a range of cal AD 1440–1660, at a confidence level of 95 %. Occupation of site O04/1022 is likely to have been only temporary at some time during this roughly 200 year period. No dates from other sites around Taipa are available for comparison.

Lab No	CRA BP	$\delta^{13}\text{C}$	cal AD 68%	cal AD 95%
Wk - 27484	769 ± 35	1.5 ± 0.2 ‰	1470–1620	1440–1660

Table 3. Radiocarbon results.

Discussion

The importance of recovering information from small damaged midden sites like O04/1022 lies in their context as part of the wider archaeological landscape. Little archaeological excavation has been carried out in Taipa Bay and the current investigation contributes to a baseline picture of pre-European Maori occupation of the area. The midden analysis and radiocarbon results suggest a temporary occupation sometime in the period between mid 15th to mid 17th centuries.

References

- Bruce, I. 2004. Archaeological monitoring of Lot 2, DP 172800 and the modification of archaeological sites O04/813 & O04/814, Taipa, Doubtless Bay. Unpublished report to Montpellier Group Ltd, Auckland.
- Campbell, M. 2009. Site O04/1022, Taipa: archaeological damage report. Unpublished report to Far North District Council.
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Report on Radiocarbon Age Determination for Wk- 27484

Submitter	M Campbell
Submitter's Code	O04/1022 Sample 1
Site & Location	Taipa, Far North, New Zealand
Sample Material	Shell sample from midden
Physical Pretreatment	Surfaces cleaned. Washed in an ultrasonic bath. Tested for recrystallization: aragonite.
Chemical Pretreatment	Sample acid washed using 2 M dil. HCl for 200 seconds, rinsed and dried.

$\delta^{13}\text{C}$	1.5 ± 0.2 ‰
D ¹⁴ C	-91.3 ± 4.0 ‰
F ¹⁴ C%	90.9 ± 0.4 %
Result	769 ± 35 BP

Comments

Alan Hogg

30/3/10

- 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.
- F¹⁴C% is also known as *Percent Modern Carbon (pMC)*.

