

# **Archaeological investigations at U14/2402,Tauriko: final report**

**report to  
The New Zealand Historic Places Trust  
and  
Comanche Holdings Limited**

**Jaden Harris**

---

**CFG**  
HERITAGE

CFG Heritage Ltd.  
P.O. Box 10 015  
Dominion Road  
Auckland 1024  
ph. (09) 638 6624  
[jaden.h@cfgheritage.com](mailto:jaden.h@cfgheritage.com)

# Archaeological investigations at U14/2402,Tauriko: final report

report to  
The New Zealand Historic Places Trust  
and  
Comanche Holdings Limited

Prepared by:

  
.....  
Jaden Harris

Reviewed by:

  
.....  
Matthew Campbell

Date: 3 April 2009

Reference: 2008/95

© CFG Heritage Ltd. 2009

---

**CFG**  
HERITAGE

CFG Heritage Ltd.  
P.O. Box 10 015  
Dominion Road  
Auckland 1024  
ph. (09) 638 6624  
jaden.h@cfgheritage.com

# Archaeological investigations at U14/2402, Tauriko: final report

Jaden Harris

## Introduction

Archaeological investigations were carried out at site U14/2402 from 7–12 April 2008. Investigation was required as a condition of authority 2008/79 issued by the Historic Places Trust under section 14 of the Historic Places Act 1993.

The land occupied by site U14/2402 is currently being developed as part of the Tauriko Business Estate, a commercial/industrial zone in the land bounded by the Route K Roundabout to the north, State Highway 29 to the west, Belk Road as far as Winterbre Lane to the south and the Kopurererua stream to the east. Archaeological assessments and swamp coring have been conducted for earlier stages of this project (Bowers 1999; Campbell 2004a, 2004b, 2006a, 2006b; Campbell and Arabin 2004) and excavation at site U14/2351, Mataraua, some 900 m to the north, was carried out in August 2007 (Campbell and Hudson 2009). The investigation of U14/2402 was in preparation for most of the hill on which the site is situated being removed for use as fill in other areas of the project.

## Background

U14/2402 was recorded under the New Zealand Archaeological Association Site Recording Scheme as an obsidian findspot in 1984. No surface evidence or other archaeological features were found in the vicinity at that time nor during the initial assessment for the current development (Campbell 2004a). However, the prominence of the isolated hill in the middle of the Kopurererua Stream valley (Figure 1) and the fact that it had probably never been ploughed meant that any subsurface archaeological remains were likely to be intact.

## Research Design

Due to there being nothing visible on the surface prior to excavation and the nature of the earthworks proposed for the hill on which U14/2402 was located, the research strategy was simply to identify and record any archaeological features and evidence present using the appropriate archaeological methods. By these means any data collected could then be used for comparison with other excavated sites in the area to help build up a picture of prehistoric

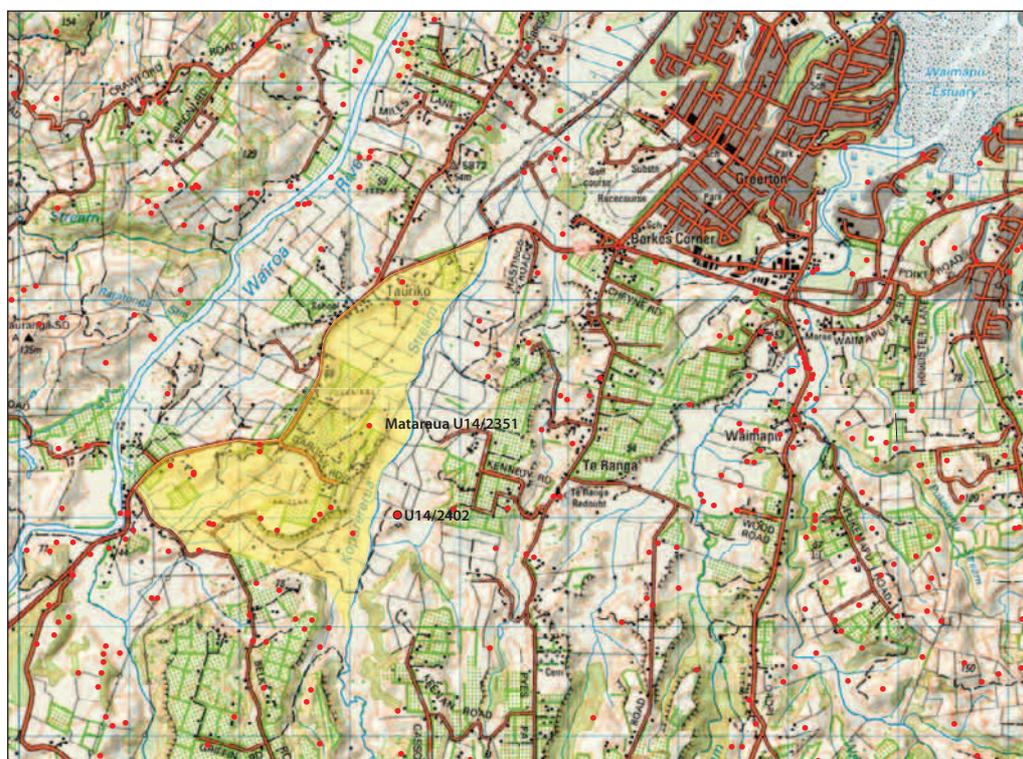


Figure 1. Location of U14/2402 and the Tauriko Business Estate (approximate extent shaded yellow), showing other recorded sites in the general vicinity. Other sites mentioned in the text are labelled.

Maori occupation of Tauriko and the Kopurererua Stream catchment, as well as inland Tauranga generally.

### Methodology

To determine the nature and extent of any archaeological features associated with U14/2402 the site was initially investigated by clearing the topsoil with a mechanical excavator under archaeological supervision. This revealed three small areas of prehistoric Maori occupation along the crest of the hill. No features were recorded at this time but surface finds of obsidian flakes were retained for later analysis. Three test trenches were also opened up across the flat area on the east side of the hill. No archaeological evidence was found in this area.

### Archaeological Investigation

The archaeological investigation was undertaken from 9–12 April 2008 under the supervision of Jaden Harris. Of the three areas identified Area A occupied the highest point of the hill, Area B the gently sloping ground in the middle of the hill and Area C the low knob on the end of the hill (Figures 2 and 3).

For each area the surface was cleaned down by hand and any additional features marked. Features and potential

features were then numbered and excavated. Information regarding the form and type of feature along with other details were entered into the site fieldbook. All archaeological features were then mapped by hand off baselines between control points which were surveyed using differentially corrected GPS. Numbers given to features which were deemed not to be of archaeological origin, typically tree-root and vegetation disturbance, were recorded but not mapped.

### Area A

Area A consisted of a small terrace and a series of oven scoops and other features on the highest point of the hill (Figure 5). No features were found directly on top of the knob with all being situated on the slopes on its northern and western sides. The terrace measured 2.3 m wide by 3.2 m long and was cut into the western end of the knob. Seven postholes and one possible drain were cut into its surface of the terrace (Figure 4). Two large flakes of obsidian were recovered, one found on the surface and another in a post-hole (Feature 32).

On the northern face fourteen oven scoops were excavated along with associated postholes and stakeholes. Several of the scoops contained shell in their fill and most

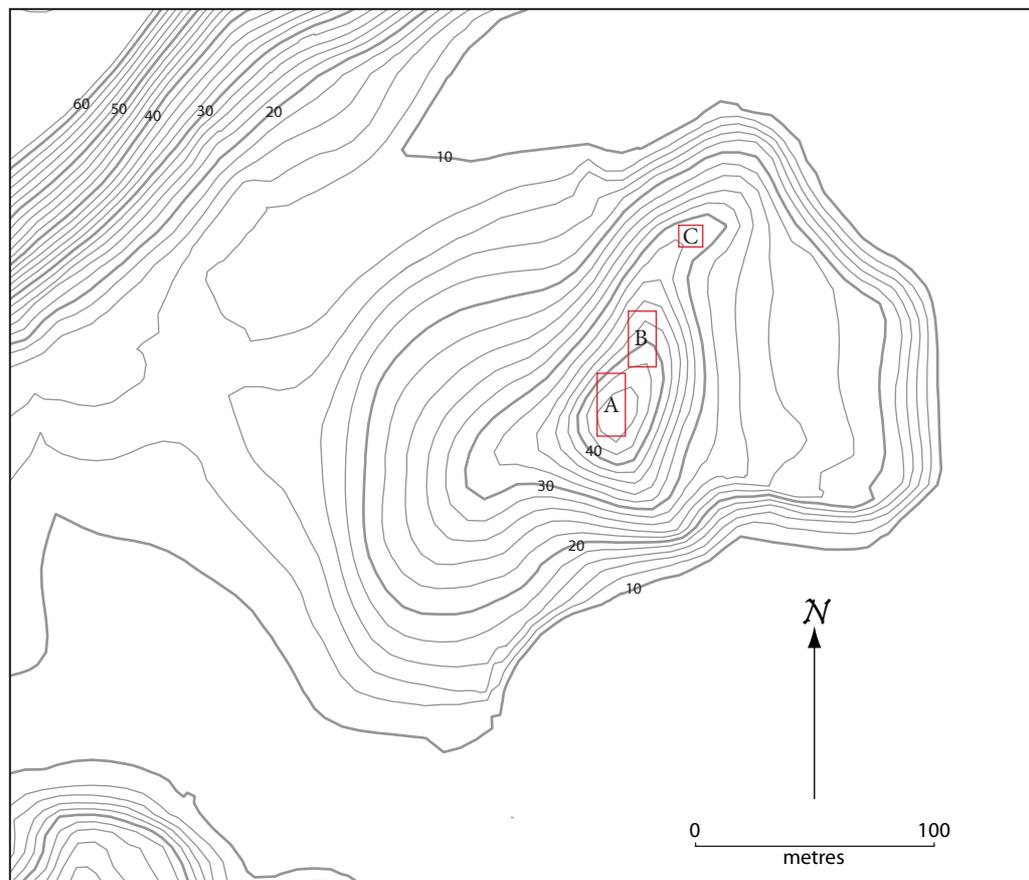


Figure 2. Map showing location of U14/2402 and the areas excavated. Contour interval = 2 m.



Figure 3. The relationship between the three excavated areas on the hillslope.



Figure 4. Feature 1, a terrace on the edge of Area A. Scales = 1 m.

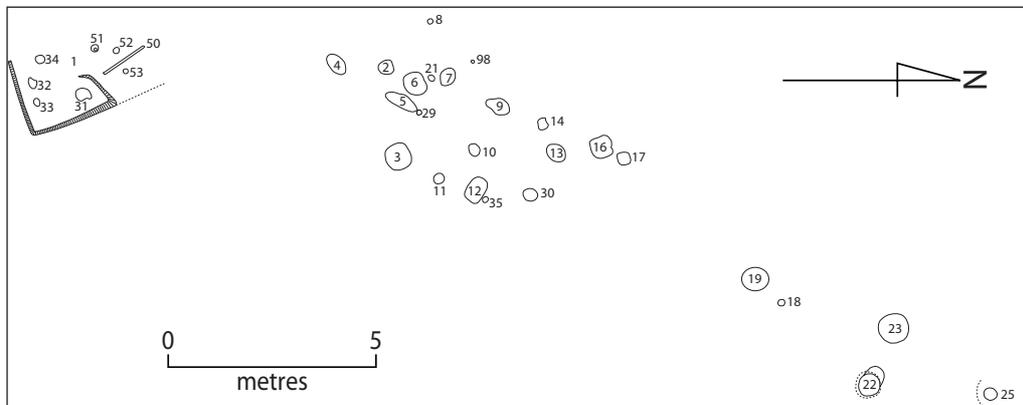


Figure 5. Excavation plan of Area A, U14/2402.



Figure 6. Area A, showing oven scoops cut into slope, prior to excavation. Scale = 1 m.



Figure 7. Feature 22, a bell-shaped pit on the eastern edge of Area A. Scales = 1 m.

showed evidence of burning at the base and sides in the form of heat reddened soil. There was very little flat land available on this part of the hill and many of the ovens are situated on a considerable slope (Figure 6). There was no midden around the oven scoops or further down the slope, suggesting that occupation of this part of the site was only temporary. The only other feature was a small bell-shaped pit east of the main group of oven scoops (Figure 7).

The evidence of low level occupation supports the hypothesis that Maori were mainly using this site as a stop-over as they moved through this part of the Kopurererua Stream catchment. The surrounding higher plateau land would have been more suitable for permanent occupation, as shown by the density of features at Mataraua (Campbell and Hudson 2009).

### Area B

Area B occupied the widest and most gently sloping part of the hilltop and was separated from Area A by a steep rise up to the highest point of the knob and from Area C below by a steep and narrow section. Not surprisingly this is where the highest concentration of archaeological evidence was located with approximately 50 features recorded (Figure 8). Like Area A there were no intercutting features or accumulations of midden suggestive of long-term occupation.

The main cluster of features was on the flattest part of the slope. Several small rectangular pits were excavated with the largest being Feature 123. This pit measured 1100 x 850 mm and was 550 mm deep. Half of the fill of the pit was comprised of clean pipi and cockle shells (Figure 9), with the bottom 150 mm filled with clean, fine volcanic soil. Feature 123 and those around it were overlain by approximately 100 mm of charcoal blackened soil and mixed tephra. This may be the result of prehistoric activity upslope or later historic period land management practices

such as burning off. One bell-shaped pit (Feature 99), 1400 mm in diameter on the surface and 750 mm deep was also identified but not fully excavated. While no evidence of gardening was identified on the hilltop or the raised flat to the east, it is possible that the pits were used to store kumara brought in from other sites.

There were numerous postholes excavated between Feature 123 and Feature 55 but as is often the case there were no clear alignments or indications of structures. In the south west corner of Area B were a group of three oven scoops along with another scoop feature, a small pit and three postholes. Feature 39 still had its ovenstones in situ, with ten relatively uniform sized stones grouped in the centre of the scoop (Figure 10).

Features further down the slope in Area B were less clearly defined. The best preserved was Feature 90, a shallow rectangular pit 1200 x 1100 mm and 300 mm deep at the back (Figure 11). A small bin pit and two possible postholes were also found on the southern side of this part of the slope. On the northern side several potential features were investigated but found to have no definable shape or form after excavation.

### Area C

Area C contained just nine features and was the least well preserved of the areas investigated (Figure 12). The most definite features were several oven scoops of which only Feature 114 was excavated. It was a relatively large oval scoop 600 x 480 mm and 100 mm deep containing a black charcoal rich fill with burnt crushed shell. Several other features which appeared to be shell filled postholes from the surface turned out to be no more than shallow pockets of midden with irregular forms. Two small pits (Features 113 and 128) contained nothing in their fill but blackened and mottled natural volcanic soil.

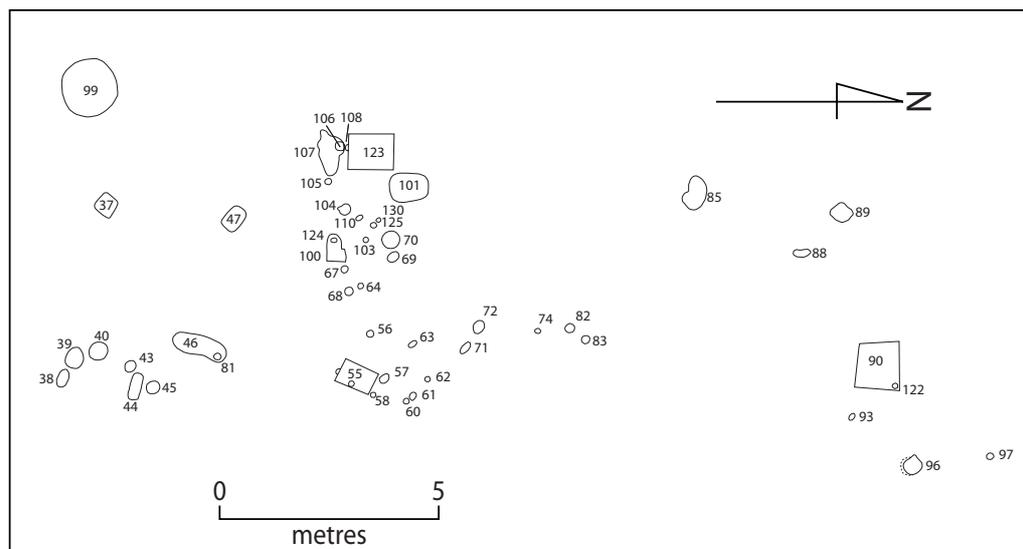


Figure 8. Excavation plan of Area B, U14/2402.



Figure 9. Profile of pit, Feature 123. Scales = 1 m.



Figure 10. Area B oven scoops, Features 38, 39 and 40. Scale = 1 m.



Figure 11. Feature 90, a shallow pit cut into the slope of the hill. Scales = 1 m, 0.3 m.

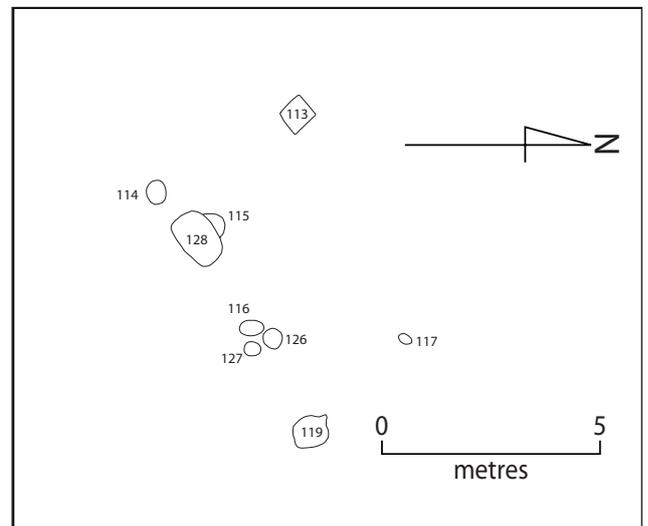


Figure 12. Excavation plan of Area C, U14/2402

### Stone artefacts

Marianne Turner, Anthropology Department, University of Auckland

Fifteen obsidian artefacts and three chert flakes were recovered from the site. Only diagnostic artefacts were analysed.

### Obsidian

Details of form (Table 1), shape and size were recorded along with manufacturing details and use wear patterns. Each piece was weighed, but measurements were assigned to 10 mm size classes based on maximum dimension.

All pieces were green in transmitted light and can be sourced with confidence to Mayor Island, about 25 km from Tauranga Harbour by sea. As is typical for obsidian

from this high quality source, there was very little cortex (weathered outer surface).

### Cores

Cores are pieces from which flakes have been struck for use as various tools. They usually have flake scars on at least two surfaces. When cores get below about 40–50 mm maximum dimension they become difficult to hold or position in order to strike off flakes effectively and are then described as exhausted.

All three cores from U14/2402 were small and could be considered exhausted. Two also appear to have been broken from larger pieces. A likely scenario here is that instead of a flake being removed the core itself broke; a sure sign that it was close to exhaustion.

	number	%
Cores	3	20
Angular fragments	2	13.3
Shatter	1	6.6
Flakes	8	53.3
Cobble	1	6.6
Total	15	

Table 1. Obsidian artefacts by type.

### Angular fragments

Angular fragments are pieces that are not flakes, that is, they lack characteristics like a striking platform or a clear dorsal and ventral surface with a bulb of percussion. They generally have a blocky appearance with flat surfaces. There is a possibility that some are broken pieces snapped from cores but the evidence of flake removal is not conclusive, usually due to breakage.

In experiments reducing three obsidian cores into useable flakes, the frequency of angular fragments produced was low. In several of the obsidian assemblages from the lake-side village at Kohika in the Eastern Bay of Plenty, dating to the later 16th century (Irwin and Jones 2004), roughly contemporary with U14/2402, and where all the obsidian also came from Mayor Island, frequencies of angular fragments are considerably higher (Holdaway 2004), similar to U14/2402, suggesting they were being produced from some other process than flake production. Probably large pieces were being broken up quite violently to produce small more manageable and better quality cores.

### Shatter

Shatter is defined as tiny flakes or broken pieces of flakes less than 1 g in weight and often less than 10 mm maximum dimension (see also Holdaway 2004). They are generally created during flake strike, while retouching edges, or while trimming striking platforms on cores. As material from the U14/2402 excavation was not systematically sieved the recovery of such pieces was incidental.

### Flakes

The majority, if not all, of the flakes have been struck deliberately from cores.

Analysis of the Kohika 2007 obsidian assemblage showed a high correlation between flake breakage and flake use (personal observation). The frequency of broken flakes at U14/2402 is 31.2%, notably higher than the experimental result but not as high as that for Kohika (64.1%). A high frequency of flakes exhibited visible modification, 75%, undoubtedly the result of human activity during the occupation of the site (as opposed to being the possible outcome

of more random processes like post-depositional damage or trampling during the site's occupation). The majority of those flakes that had no visible modification were small, 20 mm or less in maximum length, but many of these had fine edges that would have been ideal for fine cutting, a use that leaves no visible edge modification.

The largest flake was 50 mm maximum dimension, with most falling between 20 and 40 mm in maximum size. This data corresponds quite well with the core size and dimensions of flake scars on their surfaces. All of the larger flakes (40 mm and over) had modification resulting from use-wear.

### Cobble

In the U14/2402 data assemblage are two pieces that, when refitted, form a cobble of very poor quality obsidian. It is not flakeable and is so flawed that no sharp pieces could be extracted from it. Its removal from Mayor Island is thus somewhat of a mystery as no useful purpose immediately presents itself.

### Manufacture

No flakes, chunks, cores or shatter had any cortical evidence on their dorsal surfaces supporting their original extraction from large non-cortical parent material.

### Use wear/modification

The number of obsidian pieces exhibiting post-manufacturing modification is high, 75%. The range of edge modification is wide (Table 2). This variation may relate both to a range of uses and to different degrees of use.

With obsidian, which is ideally suited to the cutting of soft materials, some uses will leave no visible or even microscopic damage. From experimental evidence, different uses, for example, cutting, scraping and sawing, can result in similar edge modification. The size of the flake and characteristics of the edge such as its shape and edge angle will also influence both how it is used and the resulting edge modification. New Zealand flake tool assem-

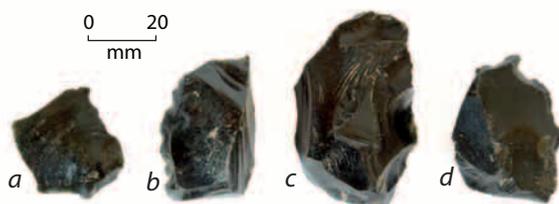


Figure 13. Obsidian artefacts from U14/2402: a, retouched flake with snapped finger rest; b, exhausted core; c, retouched flake with heavy use wear; d, retouched flake with heavy use wear from scraping.

blages are not generally characterized by formal types of tools (Jones 1972; Shawcross 1964) thus the employment of functional labels such as ‘scraper’ and ‘knife’ can be misleading. Commonly flakes and pieces can exhibit a diverse range of modification. This might reflect a multi-purpose tool, or edge rejuvenation and re-use for the same or a different purpose. It can also be difficult to identify the working edge or end from modification to aid handling. When a tool has subsequently broken as a result of use or post-depositional processes, these difficulties are even greater.

Below is a description of the different types of edge modification as outlined in Table 2, and their possible functions.

*Type 1a: minor edge modification with backing.* Four of the seven flakes in this category have only light serration consistent with cutting soft materials gently against a hard surface. Three others, however, have heavier damage with steeper serration characteristic of scraping, probably of wood.

*Type 2: basic points/projections.* These are sharp projections that were created either by snapping one or two sides to create sharp junctions, or are natural sharp projections at flake corners. Three flakes and two angular fragments in this category are generally sharp with delicate tips and their most likely function is in muka (flax) preparation. Finishing touches on delicate/intricate wood carving is also possible.

*Type 3: retouched edges overlaid with use wear.* As for Type 1 but more heavily used with rejuvenation of the edges when they get too blunt. Subsequent use wear on the three flakes and one angular fragment ranged from heavy serration to crushing and fracturing. Sawing of bone is probably a major use where edges are straight.

*Type 5: heavy modification of edges.* Edge damage comprises major fracturing and shattering of the edge. Function is not precisely identified but seems to indicate damage from impact rather than just pressure. Possibly crushing or use against a hard surface like an anvil.

## Summary

The range of edge modification outlined above suggests a range of activities was taking place at the site, including

bone sawing, wood working and the cutting of soft materials like flax. Heavier damage on some of the flakes and angular fragments suggest activities involving crushing and pounding.

Some of these pieces had evidence of multiple use and/or modification for handling suggesting prolonged use and reuse. It must be remembered that often the flakes were being used to make wooden tools that do not themselves survive into the archaeological record, that is, the flakes were not the end product but a means to the end. Patterns of reuse indicate that flakes may have been returned to stockpiles for later use, often resulting in complex histories of multiple use. Obsidian was the only stone type recovered, other than the small chert flakes, and so would have been put to multiple uses.

Despite being a relatively small sample, the assemblage shares many affinities with the settlement of Kohika. A similar range of activities are represented, as well as similar approaches to the production of cores, flakes and other pieces for use. Part the value of obsidian was its flexibility, in that it was very easy and fast to flake, retouch and modify according to needs. Smaller cores were likely to be close at hand for everyone should they need a fresh sharp flake.

The manufacture of artefacts from wood and fibre is indicated, such as the making of clothing and cords and the smoothing of wooden handles. These activities are time-consuming and thus more likely to be undertaken in a semi-permanent settlement context.

## Other Stone Artefacts

The only other stone artefacts from U14/2402 were three flakes of orange chert with a thin water-rolled black rind from Feature 25. Two are very small, well under 10 mm and could represent shatter. The third is a slightly larger flake that shows no signs of use.

## Midden Analysis

Two ten litre midden samples were retained for analysis. These were taken from Feature 19, an oven scoop in Area A East and Feature 123, a pit in Area B. Each sample was air dried, weighed, wet sieved through a 2 mm mesh and

Type	Description	flakes	angular fragments
Type 1a	minor edge modification with backing	2	0
Type 2	sharp pointed edges	1	0
Type 3	retouch and use wear	2	2
Type 5	heavy edge wear	1	0
Total		6	2

Table 2. Obsidian use wear and modification.

redried. Weight loss through wet sieving (in other words, the amount of soil sieved out of the sample), as a percentage, is used to quantify the density of the midden, that is, how much material there is in the sample and how much of it is shell. These statistics are shown in Table 3. In this respect the two samples are very similar, with between 54 and 64 % of dry weight made up of soil.

Context	Dry weight (g)	Sieved weight (g)	% loss (weight)
F 19	8300	3012	64
F 123	7390	3370	54

Table 3. Volume and weight data for midden samples

Shells were identified to species level following Morley (2004). Minimum numbers of individuals (MNI) were calculated for bivalves by dividing the total count in half. Each species was weighed and uncountable residue was also weighed.

The dominant shell species were cockle (*Austrovenus stutchburyi*) and pipi (*Paphies australis*) (Table 4). These shell fish are estuarine or sheltered beach species and would have been easily accessible anywhere around the margins of Tauranga Harbour. The presence of ostrich foot (*Struthiolaria papulosa*) was noted from some features (including Feature 123) during excavation, but were not sampled in the material analysed. Ostrich foot, like tuatua and triangle shell, live in open sandy beaches – their presence probably represents dead specimens that washed into the harbour and were gathered with the target species. Shellfish gathering and processing does not seem to have played a major role in the occupation of the site.

Context	Cockle ( <i>Austrovenus stutchburyi</i> )	Pipi ( <i>Paphies australis</i> )	Triangle shell ( <i>Spisula aequilatera</i> )	Tuatua ( <i>Paphies subtriangulata</i> )
F 19	153	577		
F 123	1071	753	2	1

Table 4. Counts of shell by species (MNI)

## Chronology

### Relative chronology

From the archaeology there is no evidence of any distinct phases of occupation at site U14/2402. The overall picture suggests a narrow timeframe for the utilisation of the site with a relatively low level of occupation.

### Radiocarbon Dating

One sample of pipi shell was submitted for radiocarbon dating from the sample taken from Feature 123 in Area B. The shell from this pit was largely whole and unburnt making it ideal for dating purposes.

The date for U14/2402 (Wk 24224) returned a conventional radiocarbon age of  $656 \pm 35$ , which calibrates to AD 1500–1770 at 95% confidence interval, slightly later than those for Mataraua, cal AD 1430–1660 (Campbell and Hudson 2008). A series of radiocarbon dates from sites in the nearby Waimapu Valley has shown that the main occupation of the Waimapu lasted for around 200 years from AD 1450–1650 (Campbell 2003, 2004c, 2004d, 2005; Furey 2004), as it did at Mataraua. U14/2402 appears to post-date this.

## Discussion and Conclusions

Archaeological investigation of site U14/2402 revealed three small areas of archaeological features indicating low-level prehistoric Maori occupation. The evidence suggests that people were using the site as a stopover as they were moving through the Kopurererua Stream valley. While the site was probably never occupied for any length of time a terrace on the edge of Area A and rectangular and bell-shaped storage pits in Area A and B point to small groups of people living there on a temporary basis.

This is in contrast to sites situated on the surrounding higher plateau land, such as Mataraua, just to the north, where a large pit storage complex would have supported more permanent occupation. Only part of that site remains (the rest having been contoured away for kiwifruit orcharding) but early aerial photographs indicate that it was a pa up to 200 m long with a ditch at the southern end (Campbell and Hudson 2008). Clearly this is a different magnitude of occupation than at U14/2402. The occupation of U14/2402 post-dates Mataraua, and lends weight to the interpretation that the site was used by groups in transit after the wider area had ceased to be heavily occupied.

## Acknowledgements

Archaeological monitoring was carried out by Jaden Harris and Noel Hill on 7 April. The excavation team consisted of Jaden Harris, Noel Hill, David Carley and Raylene Reihana-Ruka from 9–12 April. Peri Kohu facilitated Tangata whenua permissions and involvement. Grant Downing of Comanche Holdings Ltd provided invaluable support and assistance. Stone artefacts were analysed by Marianne Turner, University of Auckland. Midden was analysed by Raylene Reihana-Ruka.

## References

- Bowers, L. 1999. Archaeological field inspection and assessment of effects, Belk Quarry access route. Unpublished report.
- Campbell, M. 2003. Archaeological investigations at Oropi Downs, Tauranga, Part I: excavation of U14/1945, preliminary report. Unpublished report to Asco Trust Limited.
- Campbell, M. and S. Arabin 2004. Tauriko Structure Plan: historical assessment Unpublished report to IMF Westland Ltd
- Campbell, M. 2004a. Tauriko Business Area Plan Change: archaeological assessment. Unpublished report to MWH New Zealand Ltd. and IMF Westland Ltd.
- Campbell, M. 2004b. Tauriko Structure Plan: archaeological assessment. Unpublished report to IMF Westland Ltd.
- Campbell, M. 2004c. Archaeological investigations of site U14/3207, Richmond Park, Hollister Lane, Tauranga. Unpublished report to Hollister Lane Developments Limited.
- Campbell, M. 2004d. Archaeological investigation of site U14/3197, Oropi Park, Tauranga. Unpublished report to Muldem Holdings Ltd and Wasley Knell Consultants Ltd.
- Campbell, M. 2005. Archaeological investigations of sites U14/1972, U14/3218 and U14/3235, Rowesdale, Tauranga: final report. Unpublished CFG Heritage Ltd report to Connell Wagner Tauranga and Rowesdale Developments.
- Campbell, M. 2006a. Archaeological monitoring of the Tauriko Business Estate, Tauranga, Stage 1: interim report. Unpublished CFG Heritage Ltd report to IMF Backstop Ltd.
- Campbell, M. 2006b. Lot 1 DPS 75525, Lot 1 DPS 55802 and Lot 4 DPS 55802, Tauriko, Tauranga: archaeological assessment. Unpublished CFG Heritage Ltd report to IMF New Zealand Ltd and Comanche Holdings Ltd.
- Campbell, M. and Hudson, B. 2009. The Mataraua site (U14/2351), Tauriko, Western Bay of Plenty. Unpublished CFG Heritage Ltd report to New Zealand Historic Places Trust and Comanche Holdings Limited.
- Furey, L. 2004. Archaeological excavations U14/1920 and U14/3193, Cheyne Road, Tauranga. Unpublished report to Victoria Tauranga Ltd.
- Holdaway, S., 2004. The Kohika obsidian artefacts: technology and distribution. In G.Irwin (ed), *Kohika: The Archaeology of a Late Maori Lake Village in the Ngati Awa Rohe, Bay of Plenty, New Zealand, 177–197*. Auckland University Press, Auckland.
- Jones, K.L. 1972. Prehistoric Polynesian stone technology: a study of usage and flaking technique with special reference to assemblages of stone flake debitage of New Zealand Archaic cultural provenance. Unpublished MA Thesis, University of Otago.
- Morley, M. S. 2004. *A photographic guide to seashells of New Zealand*. New Holland, Auckland.
- Shawcross, W. 1964. Stone Flake Industries in New Zealand. *Journal of the Polynesian Society*, 73: 7–25.

## Appendix 1: Summary of Features

ID	Area	Type	Length (mm)	Width (mm)	Depth (mm)	Diameter (mm)	Notes	Related to
50	A	drain	1100	80-90	30-40		Shallow linear feature on terrace parallel to terrace edge. Possibly a drain.	
2	A	oven scoop	480	420	200		Filled with burnt crushed shell and clean whole pipi. Bulk sample taken.	
3	A	oven scoop	640	630	150		Dark fill with charcoal. No shell.	
6	A	oven scoop	510	490	70		Shallow round scoop with burnt base. No charcoal or stone.	
7	A	oven scoop					Posthole immediately beside on uphill side.	21
9	A	oven scoop	540	420	120		Oval scoop dup into side of hill, deeper at back than front.	
12	A	oven scoop	600	470	70			
13	A	oven scoop	470	450	200		Edges not clearly defined. Base burnt.	
16	A	oven scoop	640	600	120			
17	A	oven scoop	430	400	150		Band of shell around top edge, very black fill. Base slightly irregular.	
19	A	oven scoop	640	600	70		Burnt crushed shell on top with clean pipi, cockle and tuatua below. Bulk sample taken.	
23	A	oven scoop	770	760	240		Top 20 mm black with brown fill below.	
25	A	oven scoop			80	320	Base of small scoop - burnt. Three small pieces of chert found in fill overlying scoop.	
30	A	oven scoop	360	310	50		Possibly base of scoop only.	
8	A	posthole			210	110	Slightly angled back up the hill.	
10	A	posthole	310	290	200			
11	A	posthole			200	260		
14	A	posthole	290	280	320		Edges not clearly defined. Base burnt.	
18	A	posthole	150	140	170			
21	A	posthole			200	110		
28	A	posthole	120	80	120		Probable posthole filled w clean brown fill. Only feature on top of ridge in this area – not mapped.	
31	A	posthole	390	320	340		Large posthole on terrace.	1
32	A	posthole	260	190	260		Piece of obsidian in fill.	1
33	A	posthole	170	160	140			1
34	A	posthole	210	200	210			1
51	A	posthole			70	160	Round hole 160 mm in diameter to a depth of 70 mm, then smaller hole 70 mm in diameter and 150 mm deep to one side.	1
52	A	posthole			210	130		1
53	A	posthole			170	90		1
22	A	rua			840	500	Black and circular on top with brown fill below. Sides slightly undercut. Some shell in lower layers of fill.	
4	A	scoop					Possible scoop with dark black fill, but no cultural inclusions.	
5	A	scoop	780	330	80		Narrow scoop feature.	

ID	Area	Type	Length (mm)	Width (mm)	Depth (mm)	Diameter (mm)	Notes	Related to
29	A	stakehole			240	60		5
35	A	stakehole	100	80	70			12
1	A	terrace	3200	2300	400		Small artificial terrace on the edge of the hill. Seven postholes and one possible drain cut into terrace. Two pieces of obsidian found in fill over terrace.	
85	B	?	630	600	430		Patch of cultural fill with no definite shape or form. Possible feature only. No definite features were recorded in this area.	
88	B	?					Fragmented and burnt shell mixed with brown/yellow mottled sand in slight depression.	
89	B	?					Shallow irregular depression with brown/yellow sand, charcoal staining and some fragments of pipi shell.	
107	B	fill					Visible as irregular patch of fill on surface. Test hole dug in centre went down approx 600-700 mm. No regular edges to feature, not fully excavated.	
38	B	oven scoop	440	320	80			
39	B	oven scoop	530	380	200		Oven stones still in place. Group of 10 regular sized stones in centre.	
40	B	oven scoop			210	430	No sign of burning, possibly a small bin-pit.	
70	B	oven scoop	480	470	70		Base and sides of scoop burnt.	
104	B	oven scoop	420	300	220			
37	B	pit	490	460	210		Small square pit with 2 large pieces of obsidian cobble and a piece of fire cracked rock in it.	
46	B	pit	670	500	320		Sides not clearly defined.	
55	B	pit	1000	700	550		Two postholes in profile in walls, see plan.	
72	B	pit	290	260	180		Small oval shaped bin-pit.	
90	B	pit	1200	1100	380		Posthole in corner.	122
96	B	pit	460	420	730		Bin-pit or rua dug into side of quite steep slope. Top half of fill mainly clean shell, bulk sample taken.	
100	B	pit	550	330	100		Small pit filled with shell at eastern end. Bulk sample of shell taken.	
101	B	pit	880	670	200			
123	B	pit	1100	830	550		Mixed layer of fill on top with dense layer of clean whole pipi shells beneath. Bulk sample taken. Base layered with fine tephra and sand that would have accumulated while it was still open.	
43	B	posthole			140	280		
45	B	posthole			150	310		
56	B	posthole	180	160	60			
57	B	posthole			370	180		
60	B	posthole	120	110	240			
61	B	posthole	200	150	340		Piece of wood at base sampled.	
62	B	posthole	100	90	150			
63	B	posthole					Not excavated.	

ID	Area	Type	Length (mm)	Width (mm)	Depth (mm)	Diameter (mm)	Notes	Related to
64	B	posthole	130	120	100			
67	B	posthole	150	140	230			
68	B	posthole			160	160		
69	B	posthole	230	170	300			
71	B	posthole	250	160	180			
74	B	posthole			90	110		
81	B	posthole	170	160	200			
82	B	posthole	250	240	80			
83	B	posthole	200	190	90			
93	B	posthole	180	120	180			
97	B	posthole	200	190	90			
103	B	posthole	110	100	180			
105	B	posthole	130	120	280			
106	B	posthole					Posthole visible on surface in Feature 107. Not excavated.	
108	B	posthole			300	100	Cuts into pit. Visible in profile in south wall.	123
110	B	posthole	140	90	120			
122	B	posthole					Posthole in corner of pit.	90
124	B	posthole	100	110	110		Small posthole in pit.	100
125	B	posthole			110	100		
129	B	posthole			300	200		
99	B	rua			750	1400	Not fully excavated. Black fill, changing to dark brown below. Three small pieces of obsidian found in test hole. Shallow rectangular feature. Black fill with charcoal.	
44	B	scoop	520	300	70			
58	B	stakehole	100	90	95			
98	B	stakehole				60	Not excavated. Brown with shell on top.	
130	B	stakehole	70	80	60			
114	C	oven scoop	600	480	100		Filled with burnt crushed shell. Sample taken.	
115	C	oven scoop				600	Possible oven scoop cutting into F128 or cut by F128. Some burnt crushed shell in fill.	128
116	C	oven scoop	500	400			Not excavated.	126, 127
119	C	oven scoop	800	600			Not excavated.	
126	C	oven scoop				450	Not excavated.	116, 127
127	C	oven scoop				400	Not excavated. Not as well defined as F116 and 126, possibly just rake-out.	116, 126
113	C	pit	680	640	300		Black on top with brown mottled fill below.	
128	C	pit	1300	900	240		Shallow pit filled with dark black fill.	115
117	C	posthole	270	280	60		Possible posthole filled with clean shell. Sample taken.	