Titanium Park, Stage 1A, Hamilton Airport: archaeological monitoring

report to
The New Zealand Historic Places trust
and
Titanium Park Joint Venture

HPA authority 2009/27

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McConnell Properties have begun road construction for Stage 1a of the Titanium Park development, Hamilton Airport (Lots 5, 6, 7, 9, 10, 11 and 13 DP 407016) (Figure 1). On 16 and 17 August 2012 topsoil stripping for the first section of road construction was monitored by Jaden Harris of CFG Heritage. The new road section, which is approximately 220 m long, starts from the north side of the existing loop road around the airport carpark and runs parallel to Airport Road on a north–south alignment. This development will affect archaeological site S15/416 (modified soils) recorded as the result of test investigations by Andrew Hoffmann at an earlier stage of the project in 2008 (Hoffmann 2008) (Figure 2). Monitoring of earthworks was conducted under authority 2009/27 issued by the New Zealand Historic Places Trust under section 14 of the Historic Places Act 1993.

Results

Soils are modified for kumara horticulture by digging down to the underlying sands and gravels and incorporating these into topsoils in order to improve drainage, heat retention and other agronomic factors. In the Waikato basin the under-

1. Location of the Titanium Park development area, showing archaeological sites recorded in the vicinity.

2. Plan showing the extent of the modified soils (site S15/416) identified during the 2008 test investigations and the approximate area of earthworks associated with the new road section.

lying sands are referred to as the Hinuera surface, and the overlying soils most commonly modified are Horotiu loams (Lowe 2010; Campbell 2012). The northern end of the new section of roadway extended approximately 70 m into the area of modified soils identified by Hoffmann, although it should be noted that all of the area covered by the new road line had been disturbed to some degree as a result of levelling of the ground surface in the past. In the appraisal report it was noted that large scale earthworks, associated with the use of the area by the Air Force in World War II, may have disturbed or destroyed archaeological evidence over parts of the development area (Gumbley and Hoffmann 2007). In the southern third of the road section (closest to the airport carpark) the original soil profile had been truncated down to the underlying Hinuera surface with the topsoil being a modern deposit. In the middle third the surface had been cut down into the Horotiu silt loam and similarly filled over. At the northern end of the road the soil profile consisted of a modern mixed topsoil layer, underlain by redeposited mixed Te Kowhai silt loam and clay, with a buried, albeit truncated, topsoil beneath this and intact Horotiu loams and the Hinuera surface below this. It is at the interface with the buried topsoil and Horotiu loams that intact evidence of prehistoric Maori gardening can be expected. These layers can clearly be seen in Figure 3. In this profile the modern topsoil and turf layer was 120 mm deep, with 120 mm of mixed Te Kowhai silt loam and clay, then a truncated topsoil 120–150 mm thick, underlain by 420 mm of Horotiu silt loam, with the sands and gravels of the Hinuera surface below this. From Figure 3 it can also be seen that there is some mixing at the interface between the buried toposila nd clean Horotiu loams which may be the result of Maori gardening or modern ploughing.

Where the topsoil was still partly preserved evidence of modification in the form of added sand and gravel was clear, but no evidence of features such as planting hollows or borrow pits was found in the area monitored. The total area stripped for the new roadway was approximately 220 m long by 30 m wide with modified soils present in the last 60–70 m to the north. Even in areas that have been heavily modified evidence of large features such as borrow pits would remain but evidence of small planting hollows, typically surviving if at all at sizes in the range of 300 mm across and 150 mm deep, can almost be completely removed by ploughing and cultivation. Plough lines visible in the soil indicate that the area had been extensively cultivated. Plough lines were present in both the modern fill topsoil and in the top of the Horotiu loams below the buried topsoil.

In the middle of the road line, approximately 75 m from the northern end, a group of for fire scoops were identified. This was in the area at the point where the soil profile had been cut down virtually to the top of the clean Horotiu loam, with a remnant topsoil only surviving from this point on towards the north. All oven features were excavated in half section and samples taken of the fill for charcoal analysis.

Feature 1 was a slightly isolated fire scoop which showed as a circular patch of dark charcoal rich soil with fire reddened edges. It measured 450 x 400 mm and was relatively shallow at just 40 mm deep. To the southeast of this feature was a group of three well defined fire scoops. Feature 2 was a small roughly circular scoop 450 x 350 mm x 70 mm deep. The fill contained a number of small stones which had been used as oven stones, of the same type as those found in the lower layers of the natural sandy gravel layer and were most likely obtained from a nearby borrow pit. Borrow pits can range from 2–5 m deep and so the coarser gravels and sands are

3 (above). Soil profile on the western edge of the roadway, 30 m from the northern end of the road. Scales = 1 m.

4 (left). Features 2, 3, and 4 prior to excavation looking west. Plough marks are also visible running diagonally across the site in the foreground. Scale = 1 m.

5 (below). Feature 2 with some of the oven stones removed from the surface, looking north. Scale = 0.5 m

6 (top). Feature 4 excavated in half section, looking east. Scale = 0.5 m.

7 (bottom). Features 2, 3 and 4 after excavation, looking north. Scale = 1 m.

likely to have been exposed in any such pit dug in the vicinity. Feature 3 was a large shallow scoop 900 x 800 mm by 100 mm deep and contained fragments of the same type of stones. Two fragments of a small cobble of obsidian were also found in this feature. The obsidian cobble has a dull grey cortex and has numerous spherulite inclusions. Feature 4 measured 800 mm in diameter by 220 mm deep and the fill indicated that it had been used on more than one occasion. The top 50–70 mm of fill was very dark with charcoal and oven stone fragments and below this the fill was dark to medium brown soil with far fewer inclusions. The base and sides of the feature also exhibited some fire reddening.

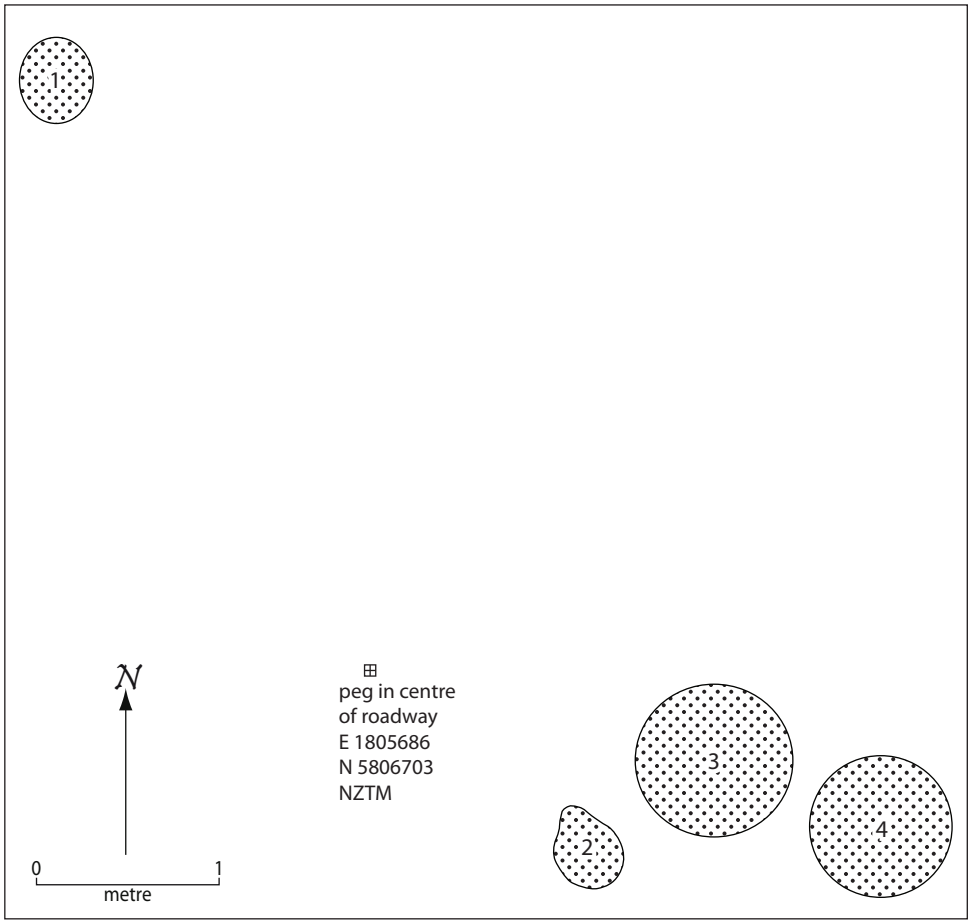
Charcoal analysis

Bulk samples of the fill from all four fire scoops were collected. The samples from Features 2, 3 and 4 were wet sieved through a 2 mm screen, dried, and then the charcoal removed and submitted to Rod Wallace, Auckland University, for analysis.

As can be seen from Table 2 this small assemblage is dominated by tawa and matai. This matches the pattern found elsewhere in the Waikato where samples associated with prehistoric Maori gardening show clearance of primary broadleaf / podocarp forest dominated by these two species.

Species	F.2	F.3	F.4	Total	Plant type (%)
Coprosma (*Coprosma* sp.)	1			1	Shrub and Small trees (10%)
Hebe (*Hebe* sp.)			1	1	
Fivefinger (*Pseudopanax arboreus*)		2		2	
Mahoe (*Melicytus ramiflorus)*	2			2	
Rewarewa (*Knightia arborea*)		1		1	Broadleaf trees (51%)
Tawa (*Beilschmiedia tawa*)	15	10	4	29	
Matai (*Prumnopitys taxifolia*)		8	15	23	Conifers (39%)

Table 1. Charcoal identification by Feature.



8. Plan of fire scoops.

Chronology

A sample of twig charcoal from Feature 3 was submitted to the Waikato Radiocarbon Laboratory for AMS dating. The result (Table 3), while not very precise, indicates that the occupation represented by the group of ovens is relatively late in the pre-historic sequence. It is quite possible however that some of the gardening activity associated with site S15/416 may date to an earlier period.

Lab no.	Radiocarbon age	cal AD 68%	cal AD 95%
Wk-35011	241 ± 25	1654–1672 (24.5%) 1745–1755 (12.6%) 1764–1770 (7.9%) 1780–1796 (23.3%)	1645–1680 (30.6%) 1732–1802 (64.8%)

Table 3. Radiocarbon result.

Discussion

Monitoring of topsoil stripping for the new road section has largely confirmed the results of archaeological testing conducted in 2008 by Hoffmann. Although relatively few features were uncovered modified soils were present in the northern portion of the road line, although any internal structure had been ploughed out, and it is possible that garden features such as planting hollows and borrow pits will be exposed by future earthworks in this area. The presence of fire scoops also suggests that people were living in close proximity to the garden site.

References

Campbell, M 2012. Cambridge Section of the Waikato Expressway: archaeological desktop study. Unpublished CFG Heritage report to the New Zealand Transport Agency and the New Zealand Historic Places Trust.

Gumbley, W., T.F.G. Higham and D.J. Low 2004. Prehistoric horticultural adaptation of soils in the middle Waikato basin: review and evidence from S14/201 and S14/185, Hamilton. *New Zealand Journal of Archaeology* 25: 5–30.

Gumbley, W. and A. Hoffmann 2007. Hamilton Airport land rezoning for Titanium Park: appraisal of archaeological values. Unpublished CFG Heritage report to Waikato Regional Airport Ltd.

Hoffmann, A. 2008. Hamilton Airport land rezoning for Titanium Park: results of archaeological testing and assessment of effects on proposed Lots 5, 6, 7, 8, 9, 10, 11 and 13 DP 407016. Unpublished CFG Heritage report to Waikato Regional Airport Ltd and Bloxam Burnett & Olliver.

Lowe, D.J. 2010. Introduction to the landscapes and soils of the Hamilton Basin. In D.J. Lowe, V.E. Neall, M. Hedley, B. Clothier and A. Mackay (eds) *Guidebook for pre-conference North Island, New Zealand 'Volcanoes to Oceans' field tour (27-30 July)* 1.24–1.61. Massey University, Palmerston North.