

**ARI-HAM TOWERS B 0100 AND A 0051:  
ARCHAEOLOGICAL INVESTIGATION OF  
PART OF SITE T15/296  
(HNZPTA AUTHORITY 2016/910)**

**REPORT TO  
HERITAGE NEW ZEALAND POUHERE TAONGA  
AND  
TRANSPOWER NEW ZEALAND LTD**

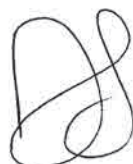
**DANIELLE TRILFORD**



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Date: 18 August 2016

Reference: 15-0693



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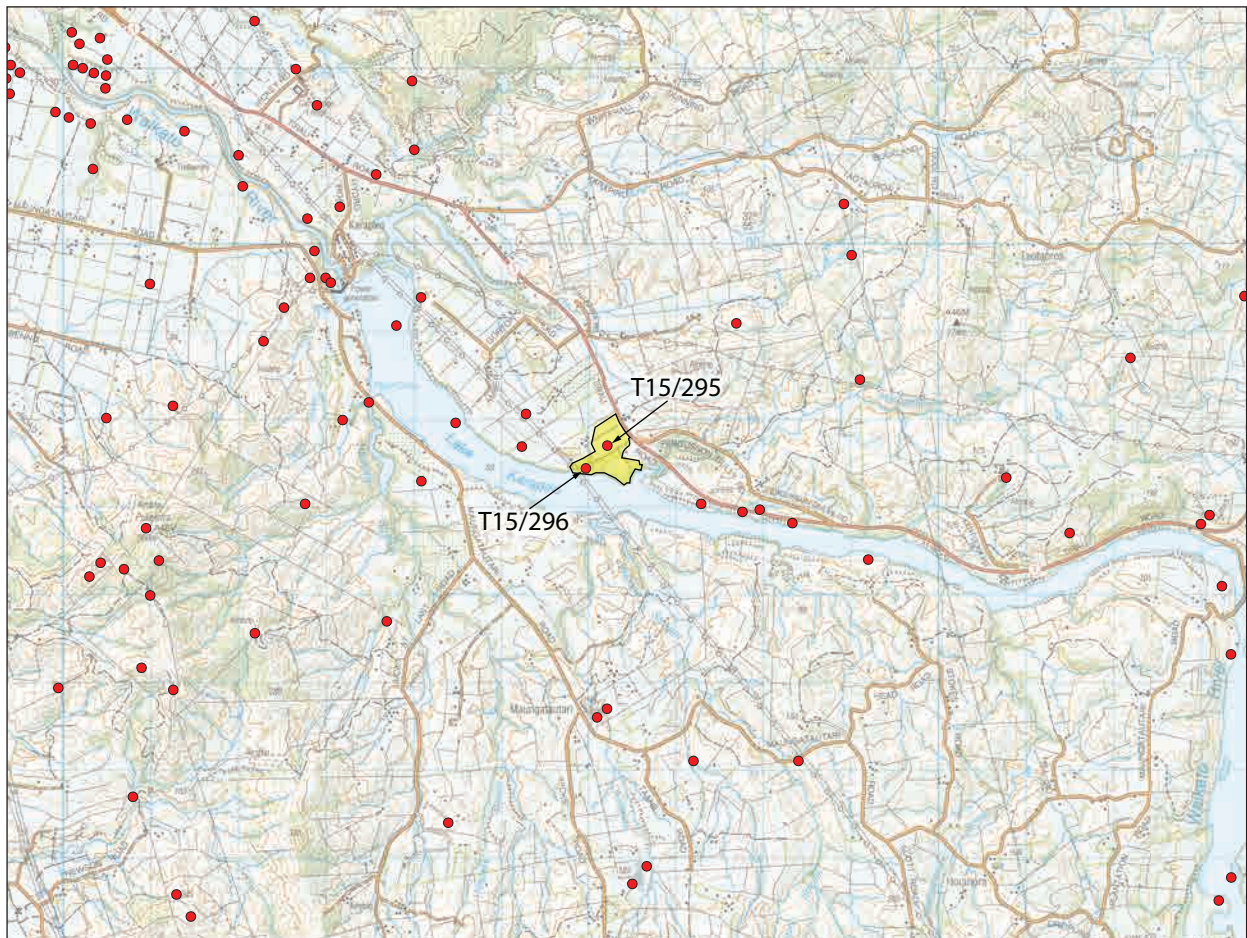
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# ARI-HAM TOWERS B 0100 AND A 0051: ARCHAEOLOGICAL INVESTIGATION OF PART OF SITE T15/296 (HNZPTA AUTHORITY 2016/910)

DANIELLE TRILFORD

Transpower is currently carrying out foundation maintenance works on approximately towers located in the upper North Island regions (Northland, Auckland, Waikato and Bay of Plenty) as part of its ongoing maintenance programme. Tower 0051 on the ARI-HAM A line and Tower 0100 on the ARI-HAM B line are steel towers with four foundations per tower. Both towers lie within an area recorded as archaeological site T15/296, a series of borrow pits, in the New Zealand Archaeological Association (NZAA) Site Recording Scheme (SRS) (Figure 1). The towers are located at 1032 State Highway 1, Cambridge (Lot 2 DP 399183). Transpower applied to Heritage New Zealand Pouhere Taonga for an archaeological authority to modify the site. Authority 2016/910 was granted 26 April 2016. Monitoring of the works was undertaken by Danielle Trilford of CFG Heritage from 30 May–7 June 2016.

*1. Location of Lot 2 DP 399183 and archaeological sites recorded in the vicinity of the project, including T15/296.*





2. Location of ARI-HAM Towers A 0051 and B 0100, and of recorded borrow pits for site T15/296, on Lot 2 DP 399183.

## Background

### *Pre-European Maori*

Most sites in the Middle Waikato Basin are pa and horticultural sites (Figure 1). Most of these sites are recorded along the margins of the Waikato and Waipa Rivers, but are also along the margins of other water ways and around the elevated edges of the basin. Site T15/296 is recorded as a collection of borrow pits on the northern bank of Lake Karapiro. The site was originally recorded by Malcolm Hutchinson from aerial photographs dating to the 1940s. T15/296 is located in the south west corner of Lot 2 DP 399183 and another site, T15/295 consisting of 28 pits, was also recorded by Hutchinson in the north of the property.

The archaeological investigation into the Middle Waikato Basin is quite recent, some of the accumulated data has helped understand the distribution of pre-European Maori gardens in the Waipa District. Studies by Campbell (2012) and Gumbley and Hoffmann (2013) showed that these sites are strongly clustered to the Waikato River, with 80 % located within 1 km of the river and 50 % within 500 m, and most others are in close range to the gullies and streams flowing into the river. T15/296 is a garden system which fits this description.

Pre-European Maori gardening evidence in the Waikato is often clearer archaeologically than in other parts of New Zealand. This is because borrow pits and modified soils are present. A description by Gumbley and Hutchinson (2014: 4) clearly explains both of these archaeological features:



Borrow pits are sub-circular depressions in the ground surface from which the underlying sand and gravel alluvium has been quarried. These sands and gravels were applied to the gardens in a labour intensive process which, it is believed, helped to produce conditions more conducive to growing the sub-tropical kumara in an environment that is relatively marginal for its cultivation. The resulting made-soils are classified as Tamahere gravelly sandy loam, and were first identified by soil scientists of the Department of Scientific and Industrial Research (DSIR) in the 1930.... They are found close to the borrow pits, generally within 100 metres and are recognizable because of the elevated levels of sand and gravel, along with charcoal, compared to the parent soils.

These gardening sites often host other archaeological features and evidence. Plant microfossils have shown the kumara, taro, and a single example of yam were cultivated in the area. Post-holes for associated structures, drains, fireplaces and storage pits show people here were conducting high level gardening processes. In addition, paleo-environmental reconstruction based on archaeological evidence has shown there was intentional bush clearance of tawa/podocarp forest through the Middle Waikato Basin created gardening spaces (Gumbley and Hoffmann 2013).

Based on environmental variables, the probable vegetation composition was predicted and mapped by Landcare Research to have been beeches before human contact. The ranges that flank Maungataurtari hosted at the lowland wetland / steep land and Highland Softwood-Hardwoods such as Rimu, tawa and kamahi forest (LRIS Portal).

### *19th and 20th century*

Much of the surrounding land was converted to farming in the late 19th century. This is still the main use of the land today. Early in the 20th century the potential for harnessing the Waikato River for hydro-electric power production was realised with the construction of the Horahora power station in 1913, built primarily to provide power to the Waihi gold fields. This was superseded, and drowned, by the construction of the Karapiro Dam in 1941, which was created to provide power for Hamilton and Auckland (Petchey 2013). A series of more than 500 towers were constructed to carry the power to Auckland.

### *Archaeological Background*

In addition to T15/296, there are several other archaeological sites near the project area. All the nearby archaeological sites are Pre-European Maori gardening systems (Figure 1). The HNZPT online archaeological report library confirmed there has been no recent reports on this site. The NZAA SRS recorded of T15/296 confirmed that the site had not been investigated until the current works.

### **Method**

Archaeological monitoring of the site undertaken by Danielle Trilford of CFG Heritage from 30 May–7 June 2016. Each tower had four footings which were originally installed in the mid to late 20th century. The maintenance works involved stripping of the soil with a 3 and 8 tonne digger under archaeological supervision. Around each footing the works would create a 3500 mm square by 1000–2100 mm deep hole for foundation and maintenance works before reinstating the holes. Additional to the holes, a 2000 mm wide and 300–400 mm deep trench between



3. Tower A 0051 showing the format of excavation with a single trench surrounding the tower and footing cuts about to commence, facing south east.

each pole footing was excavated (Figure 3). Excavation of the hole was halted while investigation and recording of any archaeological features was carried out. Spatial information was recorded using a hand held GPS with an accuracy of  $\pm 5$  m. All spatial information was uploaded to the project GIS. Standard archaeological method for all excavation and recording was employed.

### Results

During monitoring prehistoric gardening soils were identified. No artefacts, charcoal, or midden were recovered.

#### *Gardening soils and planting hollows*

The subsurface stratigraphy exposed by earthworks at both towers was the same: a shallow organic topsoil; the Tamahere soil in the form of a sheet mulch of alluvial sands and gravels (Figure 4); and in places a charcoal stain probably resulting from vegetation clearance prior to garden establishment. This sat on top of a moderately firm yellow-ochre natural loam.

In the east part of the Tower A 0051 excavations brown loamy circular features between 80–120 mm in diameter cut into the yellow loamy base provided further evidence of gardening (Figure 5). These cuts are the bases of hollows dug by pre-European Maori gardeners who usually cut these holes into the modified ground and then filled them with coarse pumice and sand mixed with a brown loam. These planting hollows have been interpreted as the bases of mounds (puke) (Gumbley et al 2003) but, while this seems reasonable, actual mounds have not been found during archaeological excavation and not all planting hollows may have had mounds over them. The hollows found ran in a series of tidy rows perpendicular to the river. The clear arrangement and absence of clustering, intercutting or irregularly placement, provide preliminary evidence that could suggest these were used for a single season. Only a very small portion of the site has been exposed and the hollows were only found in part of that, so this interpretation cannot be confirmed without further investigation.





4. Tamahere soil in the form of a sheet mulch below the topsoil. Scale = 1 m.



5. Planting hollows at Tower A 0051 holes, facing south towards the river. Scale = 1 m.

No soil samples were taken and no samples for faunal analysis, charcoal analysis or radiocarbon dating were taken as there was no suitable material.

#### Discussion and conclusion

Investigations at T15/296, although limited in extent, show a typical Waikato Basin occupation by gardeners who modified the already fertile soils with the addition of alluvial pumice sands and gravels that improved kumara growing conditions. Such sites elsewhere have been dated to no earlier than the late 15th century AD, and often contain charcoal demonstrating clearance of virgin forest, indicating a late settlement push inland (see summary in Campbell et al. 2016).



The borrow pits and gardening soils have been heavily disturbed by 19th and 20th century farming, transmission tower installation, farm track installation and use, a modern drain cut, and dumping of building materials and other modern refuse into one of the pits. The original identification and recording of the site also suggested that although no borrow pits have been identified south of the river scarp, the 1943 photo showed a deep shadow in this area and it is not possible to be sure whether there was land which could have been exploited for horticultural purposes. If there was, and cultural activity did take place here, this area is now inundated by Lake Karapiro and any archaeological evidence would have been effectively destroyed. Although a lot of the site has been damaged, much of the subsurface context appears to be intact and provides evidence of soil modifications and kumara gardening.

The site is flanked by several other known gardening and food storage sites around the lake. A field assessment T15/10, immediately north west of the site, confirmed the site was likely to be a food storage system rather than a pa as first recorded (Campbell 2014). The lack of diversity of recorded sites in the area is probably due to two main factors: most sites have been recorded from aerial photographs so that only earthworks sites are recorded while more subtle archaeological features can only be found through field survey; most excavations have been 'key-hole' excavations like the present one and opening up wider areas would expose a wider range of site features and activities as recent excavations of similar sites associated with the Cambridge and Tamahere bypasses has shown (Campbell and Hudson 2013; Campbell et al 2016)

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