

Tūpuna Maunga Authority

Heritage Impact Assessment of Proposed Tree Removals and Re-vegetation Planting Plan for Te Tātua-a-Riukiuta /Big King

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1. INTRODUCTION

The Tūpuna Maunga Authority are proposing to remove approximately 197 exotic trees from Te Tātua-a-Riukiuta /Big King. There are a number of reasons for this, including;

- Removal of trees and therefore over time their living root systems from damaging archaeological sites and evidence.
- A number of the trees are near the end of their life expectancy and constitute a danger to the public from falling limbs, branches or uprooting of the trees themselves. They also for the same reasons have potential to damage the archaeological evidence through impact damage when they fall or by altering the terraces or other adjacent features should they be uprooted when they fail.
- To re-establish the shape of the Mountain so that the historic sightlines and archaeological evidence can be viewed within the landscape.
- There are a number of trees present that are considered pest plants for which surveillance is required.

It is proposed that in order to restore the tihi/summit, removal of exotic trees is undertaken to open up sightlines in conjunction with native plantings in appropriate areas to increase native biodiversity values without impeding sightlines or affecting archaeological sites (Te Ngahere 2018:5). The planting plan as presented as Figure 3 of the Te Ngahere report is assessed in this document.

The majority of Te Tātua-a-Riukiuta /Big King is scheduled on the Auckland Council Unitary Plan as ID 1576 (Figure 1) as a Significant Historic Heritage Place. Te Tātua-a-Riukiuta /Big King is recorded on the Auckland Council Cultural Heritage Inventory (CHI) with the record number 11695 and recorded with the New Zealand Archaeological Association (NZAA) as site R11/18.

Te Tātua-a-Riukiuta /Big King is described in the CHI as a volcanic cone pa site with terraces, pits and midden. There is conflicting information on whether there were originally three or four volcanic cones in the area, however it is agreed all were terraced pa, and that in the lava cave systems associated with these pa many burials are or were once located. Records from the 1970s and 1980s mentioned terraces can be seen in the scrub below the water tower, they also note the water pipeline cuts through terraces, pits and midden. It is noted that the pa (general comment rather than specifically to the remaining cone) were purported to have had stone walling on the site, a feature that isn't common.

Specifically of note is a record of the 2009 Auckland City Council Isthmus survey that recorded “while heavily modified significant parts of the site remain largely intact, the main areas of modification on the Big King are the summit of the cone where a reservoir has been constructed, the formation of a wide sealed path up to the summit from the southern base of the cone, the construction of two large pipelines, the leveling of a south western spur or ridgeline, the leveling and landscaping of the ridge that runs north of the cone and the construction of a walking track around the base of the cone and perimeter of the reserve area. The reserve appears to be actively managed and much of the scrub and bush described as covering the cone in the original site records has been removed.....Intact pit and terrace features are visible on all faces of the cone, some very impressive and most appear intact. Midden is visible eroding out if an informal walking track on the western side of the cone below the summit walking track. It consists predominantly of cockle shell. While much of the land form surrounding the “Big King” cone has been heavily modified many intact archaeological features survive on the cone itself excluding the actual summit. There are several examples of pit complexes on the south western edge of the cone and on the ridge that extends out from the south western side of the cone.”

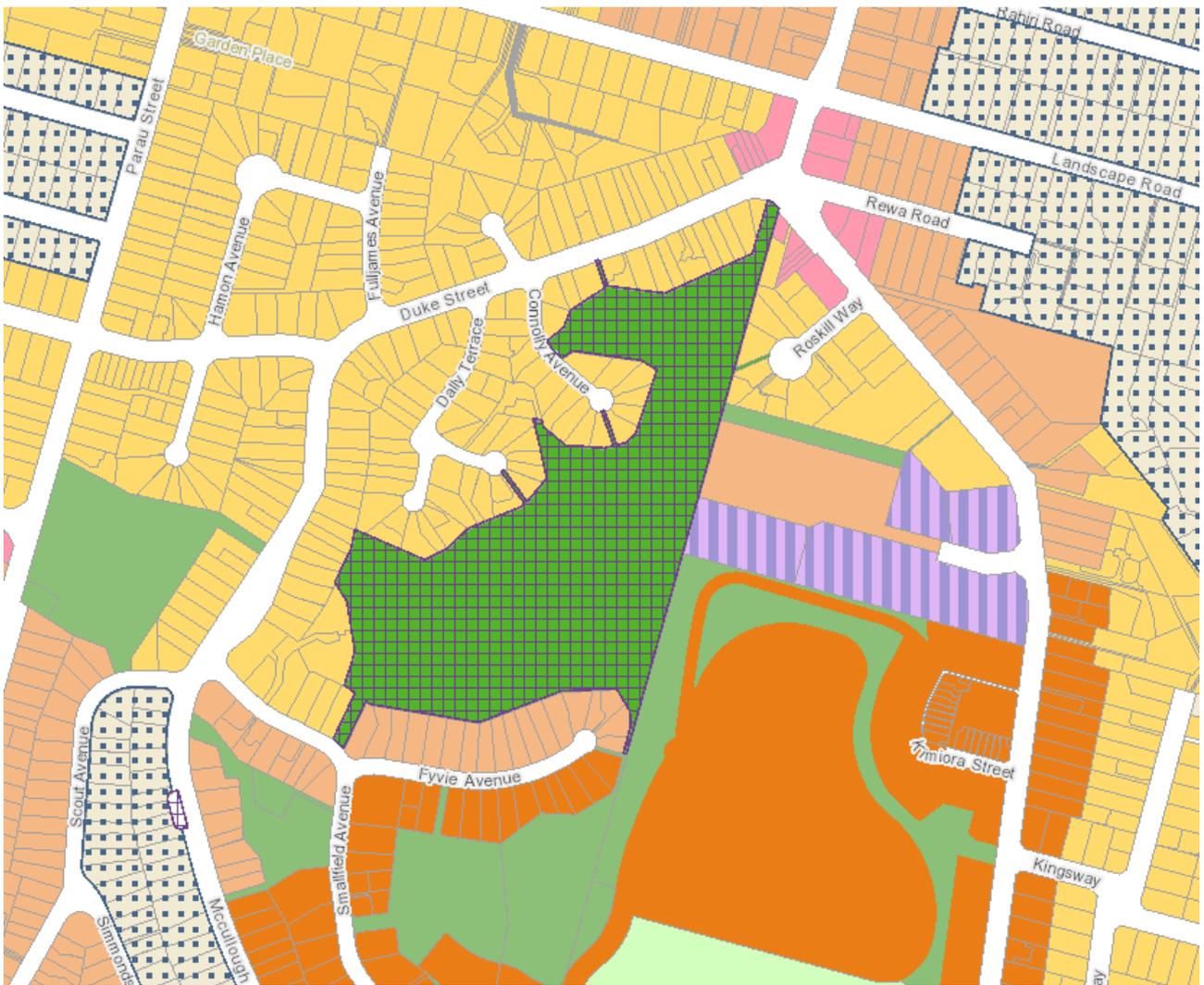


Figure 1. Area of Te Tātua-a-Riukiuta /Big King that is scheduled in the Auckland Council Unitary Plan as a Category B historic heritage place (the purple hashed area).

2. STATUTORY BACKGROUND

There are two main pieces of legislation that control work affecting archaeological sites in New Zealand. These are the *Heritage New Zealand Pouhere Taonga Act 2014* (HNZPTA) and the *Resource Management Act 1991* (RMA). The HNZPTA is administered by Heritage New Zealand Pouhere Taonga (HNZPT) and requires a consent (Authority) for any works that affect archaeological sites. In terms of the area under discussion the definition of an archaeological site in the Act is: any place in New Zealand that was associated with human activity that occurs before 1900 and which may be able, through investigation by archaeological methods to provide evidence relating to the history of New Zealand. Any person who intends to carry out work that may damage, modify or destroy an archaeological site must first obtain an authority from the HNZPT.

The authority process applies to all sites that fit the criteria of the HNZPTA, regardless of whether the site is recorded in the New Zealand Archaeological Association (NZAA) site recording scheme or if the site only becomes known of as a result of ground disturbance or if the activity undertaken is permitted under a district or regional plan or if a building consent has been granted. The RMA requires City, District or Regional Councils to manage the use, development and protection of natural and historic resources in a way that provides for the wellbeing of today's communities whilst safeguarding the options for future generations. The protection of historic heritage from inappropriate development is identified as a matter of national importance (section 6f).

Historic heritage is defined as those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, derived from archaeological, architectural, cultural, historic, scientific or technological qualities. Historic heritage includes: historic sites, structures, places and areas; archaeological sites; sites of significance to Maori, including wahi tapu, and surroundings associated with natural and physical resources. These criteria are not mutually exclusive.

The historic heritage value of Te Tātua-a-Riukiuta /Big King is recognised and the place is scheduled on the Auckland Council Unitary Plan as item 1567.

3. SITE HISTORY

The history of the Three Kings maunga are complex, without a clear site history being able to be reconstructed (Searle 1981:99), in part due to the quarrying having destroyed much of the evidence prior to study. Searle (*ibid*) records that the eruptions occurred about 20000 years ago, with activity diffused through a large number of vents scattered over a wide area. The first stages were explosive and formed a large tuff crater, later explosive events added further material within the original tuff ring. Lava rose in several vents and fountains, built many small scoria cones, sometimes erupting through flanks of earlier ones. Lava flowed from the explosion center and eventually reached what is now the Waitemata Harbour. Searle (*ibid*:100) notes that the Three Kings explosions included a complete collection (usually scaled down in size) of geological features including scoria cones, tuff cones and craters; explosion pits, horseshoe rings and breached craters, dykes and flows, tuff, scoria and lapillus beds as well as cave systems.

Searle (1981:100-102) indicates that an unknown number of centres of explosion have occurred, but that there must have been more than a dozen and the road cutting by the Ranfurly War Veterans Home show very thick beds of ash from a number of different sources.

An excellent study that outlines the human histories of Te Tātua-a-Riukiuta/Big King is published in Pishief and Adam (2015). This history was recorded in conjunction with Te Akitai Waiohua, Te Kawerau a Maki, Ngāti Tamaoho, Ngāti Te Ata and Ngāti Whātua Ōrākei. No attempt is made to record them all here, and it should be noted that some of the histories between Iwi contain differences between them when recounting the same history, they do however collectively and individually record a long history of settlement at Te Tātua-a-Riukiuta/Big King and the other associated maunga and emphasise the fact that it was an important location for a number of Iwi and their relationships with each other within the Tāmaki Makaurau region and beyond.

Likewise Pishief and Adam record the settler histories of this area and the maunga including their use as farms, including within the grounds of the Wesleyan Mission Station that owned the area through much of the earliest European ownership period. The Wesleyan Mission leased much of it for others to farm (Pishief and Adam 2015:66-71). After the sale of the land when the Wesleyans shifted to Paerata, much of the area was subdivided further and was generally quarried or became state housing. Later many of the quarried areas were redeveloped as factories and small housing subdivisions. Big King was excluded from this process when the Government purchased it as part of a larger area to be used for state housing, eventually setting it aside as a reserve on 28 July 1949 (Pishief and Adam 2015:113; note they state as per SO 34527 – it was in fact SO 34827 – Figure 3).

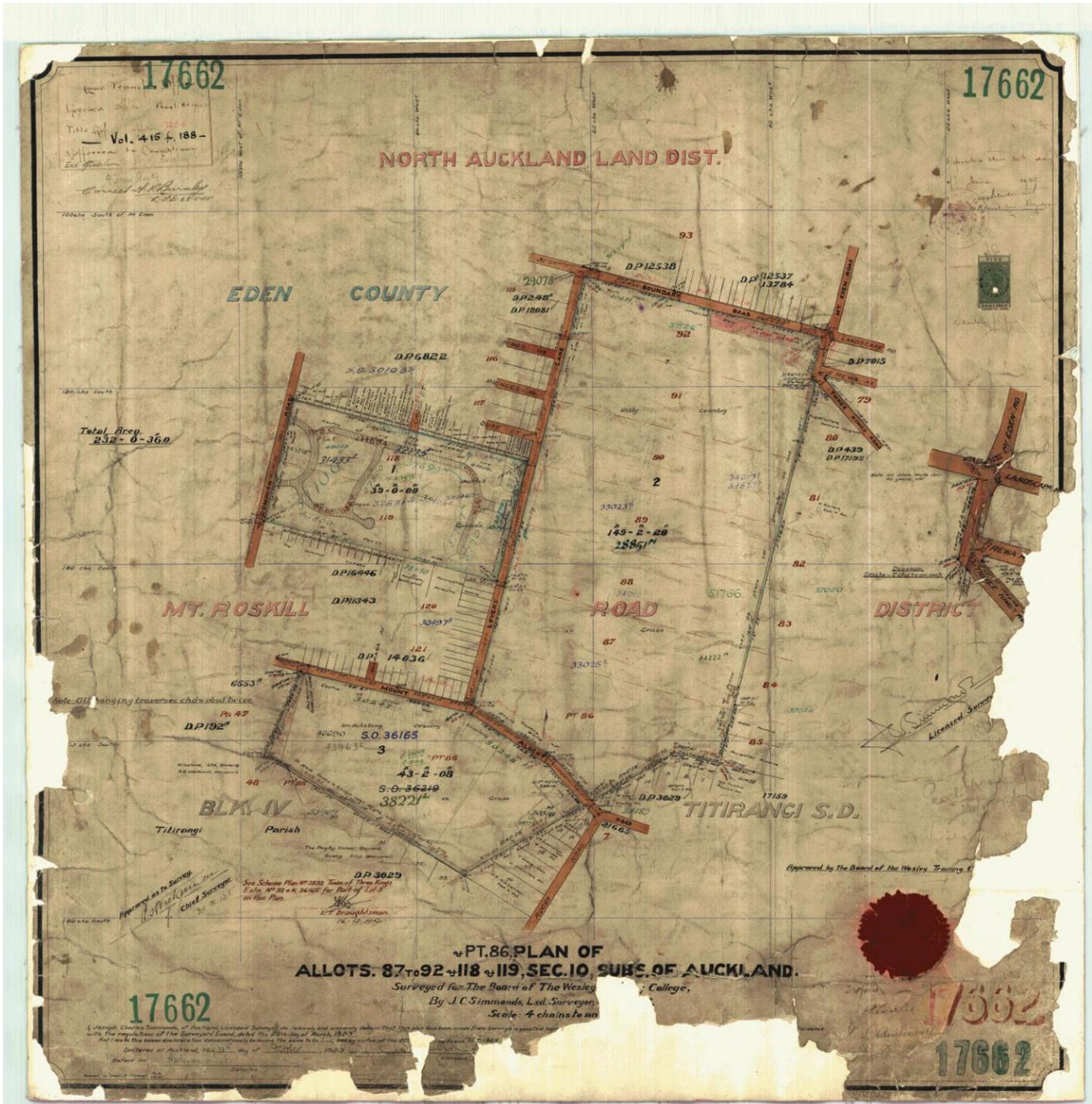


Figure 2. DP 17662 (1923), Illustrating some of the area formally owned by the Wesleyan Mission being prepared for sale and subdivision, the current Reserve is contained within parts of allotments 88 to 92, which are described as “Hilly Country In Grass.”

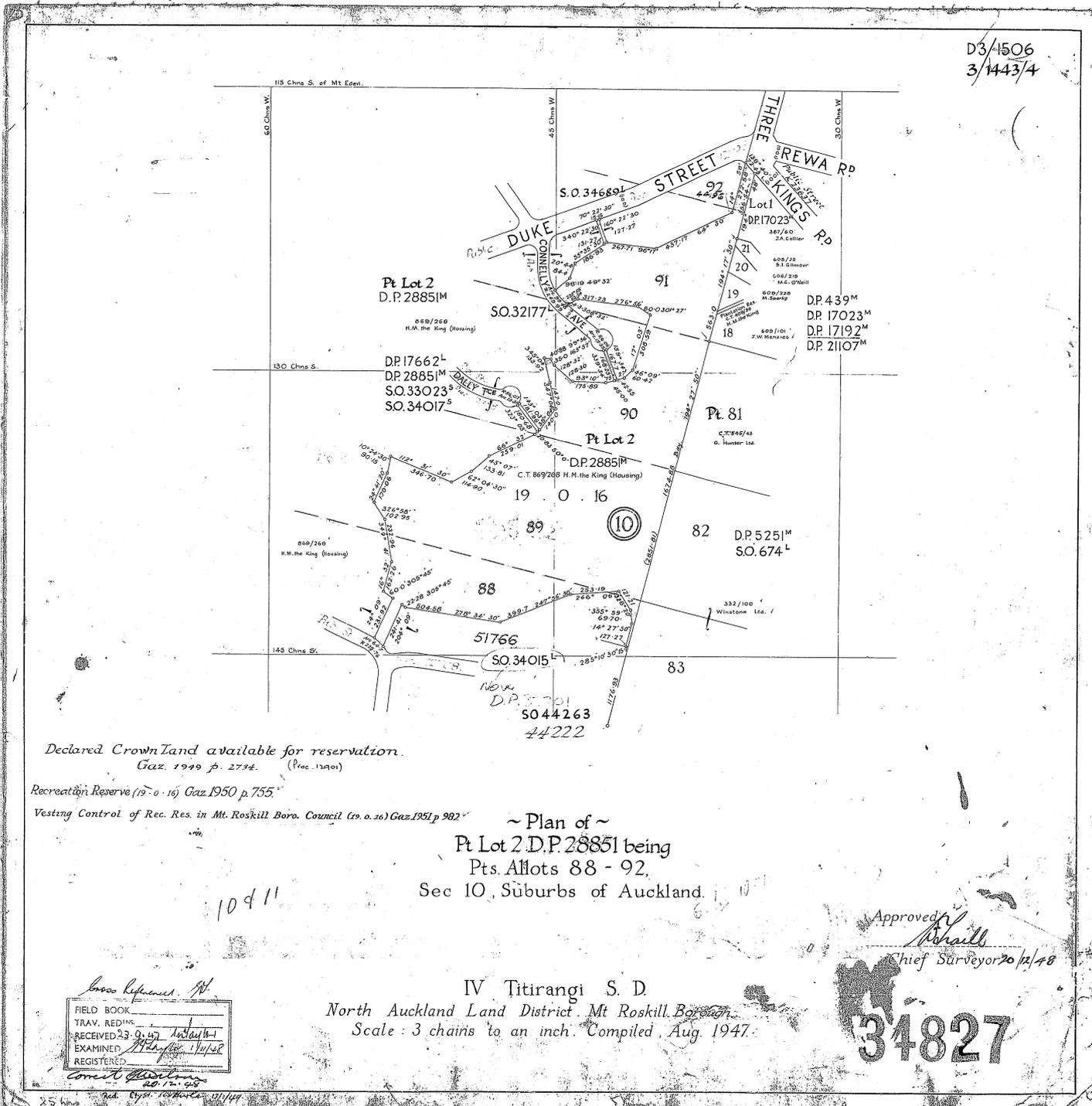


Figure 3. SO 34827 (1947), illustrating the Reserve boundaries as set in 1949, being parts of the original allotments 88 to 92 of Section 10 of the Suburbs of Auckland.

4. ARCHAEOLOGY

The previous section has given an historical narrative; this section is the history and comments of archaeological recordings only.

Te Tātua-a-Riukiuta /Big King is recorded as R11/18 with the NZAA and as CHI record 11695 with Auckland Council. It was originally reported by Bob Brown in August 1961 whose record appears to apply to all of the Three Kings Maunga, Brown recorded that in the hillocks and floors of lava caves in which many human skeletons have been found, it is also mentioned that the site had been 80% destroyed by quarrying.

Aileen Fox visited the site (now just the one mountain) in 1979, she noted a few terraces and midden, recorded that there is now a water tank on top and she recorded that there was a dense cover of privet and scrub.

Chris Grace and Golda Kunin state that in 1981 a group of people (Grace and Kunin 1981:1) inspected the water pipeline route from the summit to Duke Street. They noted crushed midden at the summit and commented that in particular the western side of the pipeline route down the northern slopes is covered in dense scrub, particularly gorse and was difficult to penetrate. They found that the pipeline cuts through a series of terraces and pits and that midden was exposed directly beneath the midden in two places, with this record they also provided drawings of the pipeline in relation to the features. A plan was also drawn up of the overall complex of Pa based on the 1940 aerial (Figure 4).

Brenda Sewell visited the mountain in 1986, she noted that several terraces could be seen through the scrub above and below the track to the watertower, and she states “*Apart from the leveling of the top of the cone the upper terraces appear to be intact. Midden seen alongside the track all the way on the upper terraces – predom. cockle with some scallop.*”

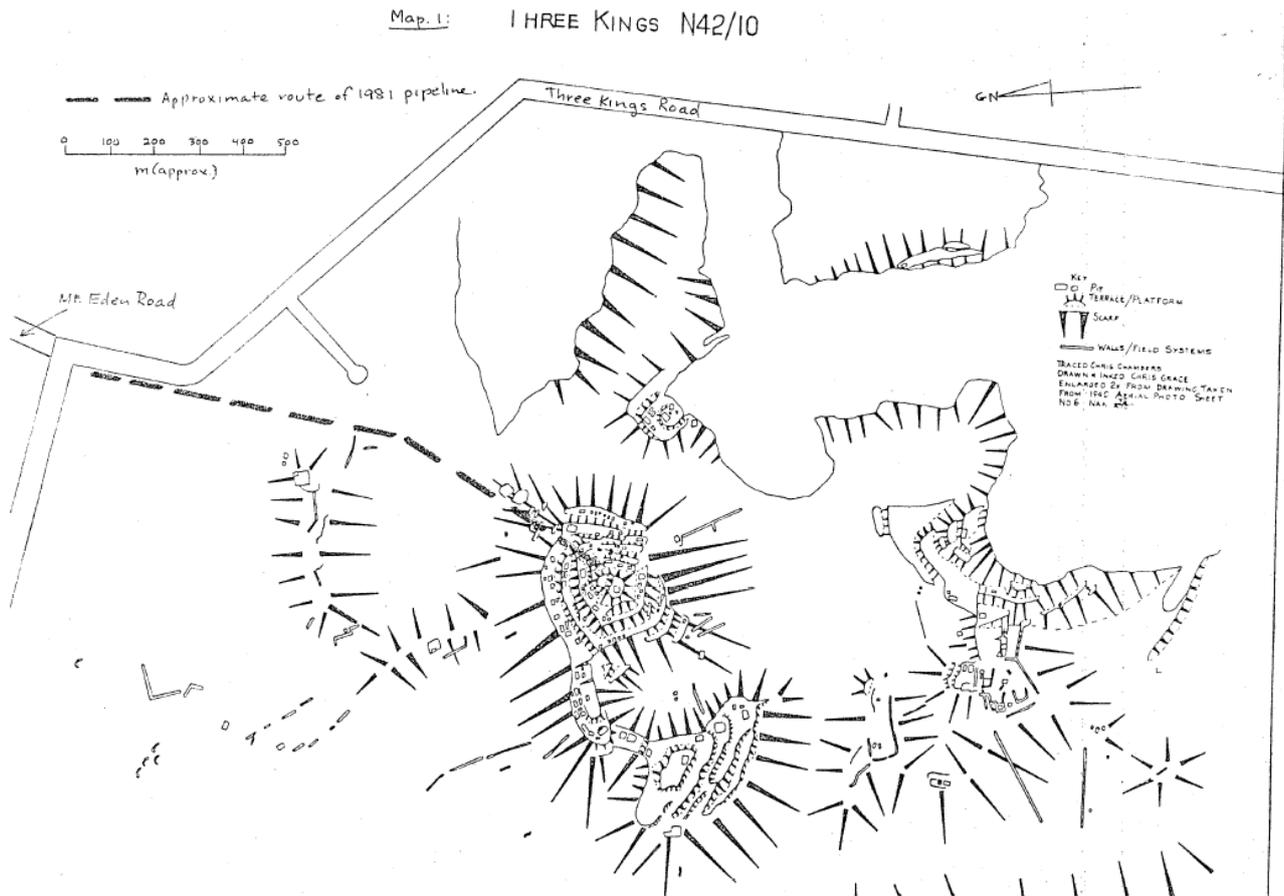


Figure 4. R11/18 Pa complex based on 1940 aerials, note site number is N42/10 – the number the site was originally recorded as using the old imperial maps. In 1940 quarrying had already begun, therefore this plan should not be viewed as complete for the whole complex. The remaining maunga is the one in the centre with the dashed pipeline route emitting from it. Note; Three Kings Road has now been renamed Mt Eden Road and acts as an extension to the original Mt Eden Road.

More recently Russell Foster assessed pipeline works to be undertaken in the Duke Street carpark, Foster (2011:5) concluded “Although the 1940 aerial photograph shows surface structures (stone walls etc.) for gardens associated with the occupation of the pa still present in some areas, none were in the vicinity of the carpark. Whilst it is possible that subsurface evidence of occupation or gardening may once have been present in the carpark area it is deemed unlikely that any such evidence will have survived in situ following the installation of the existing pipeline and the construction of the carpark.”

5. AERIAL PHOTOGRAPHS

In order to assess changes over time the series of aerial photographs available on the Auckland Council GIS were searched. The 1940 aerial (Figure 5) show the locations of the majority of the volcanic and archaeological features, quarrying has started



Figure 5. 1940 aerial photograph illustrating the archaeological and volcanic evidence, quarrying has been started and the first state houses and roading have started. The majority of the area is treeless including all of the Reserve area as we know it today.

By 1959 the aerial shows the summit Reservoir tank, as well as the bulldozed tracks, some earthworks have occurred immediately north of the cone, most likely associated with the pipeline that Foster (2011) assessed, some of the works may also have been use of the Reserve as a quarry rather than just for water purposes. The Reservoir appears to have been installed on the ridge to the west with the roading to it established. In general what is now the whole Reserve area (except where the majority of the earthworks have occurred) is covered in scrub and archaeological features and some of the areas where earthworks have occurred cannot be made out.

The next in the series is a rather out of focus 1996 aerial, these appear to show earthworks in the vicinity of the western reservoir (Figure 6). The mountain itself is no longer covered in scrub, but there are some trees, however the quality of the photograph precludes the ability to clearly define archaeological features where there is no cover. There are very few trees present in the western part of the reserve.

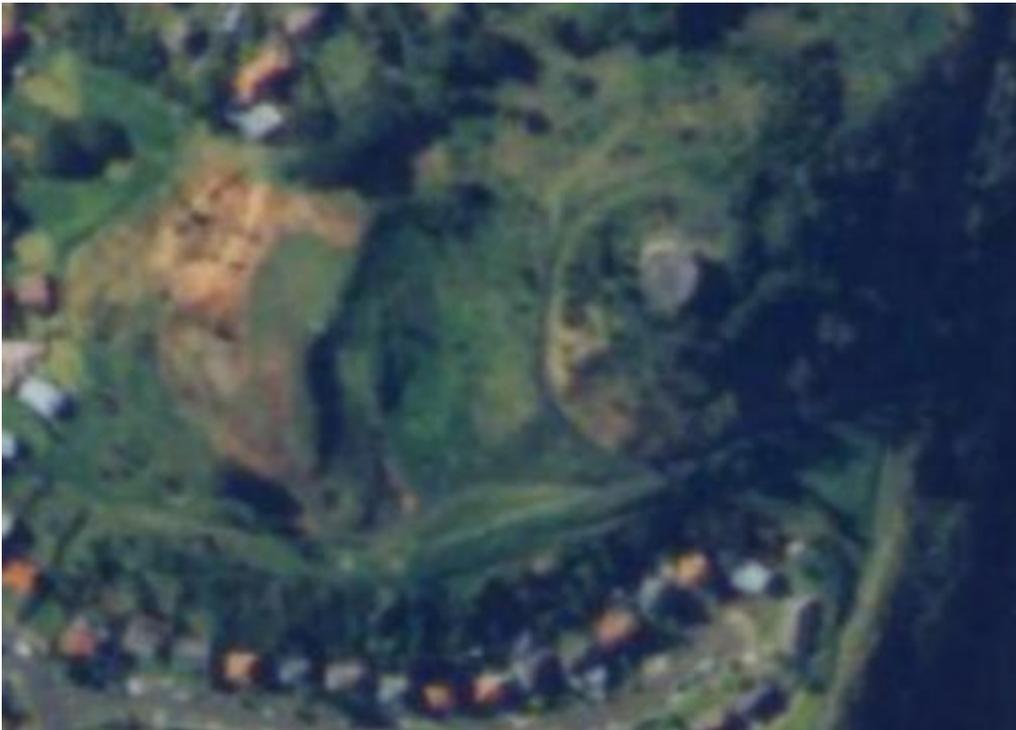


Figure 6. 1996 aerial photograph that appears to be showing an area of works and bare earth to the west and north of the western Reservoir (the flat green patch to the west of the main cone).

The next series of photographs (2001, 2003 and 2004 – the Council aggregates some years, 2006, 2008, 2010 and 2011, 2015 and 2016, 2017) illustrate the Reserve with no changes from what is found today, other than the trees in the western part of the Reserve gradually growing and getting denser. Archaeological features are variable in visibility over this time dependent on mowing

regimes and angles to the sun at the time of the photographs. It is clear that the pathways throughout this period had all been established by 2001, due to the quality of the 1996 photograph it cannot be determined that this was the case then.

6. SITE INSPECTIONS

Various site inspections were undertaken by myself, both in the company of staff of the Tūpuna Maunga Authority, other specialists and by myself over August to January 2019. The briefing given was for Treescape to be able to remove trees without damaging the archaeology of the mountain. Other areas were inspected to assess whether there was archaeological evidence present and if they were suitable for restoration plantings.

During these inspections areas were identified where substantial past earthworks and or quarrying will have destroyed any archaeological evidence (Figure 7). I am of the opinion that the aerials do not show everything that has been modified.

This information was discussed with Treescape staff and others, by email, some by subsequent phone calls and brief meetings, as well as during onsite inspections.



Figure 7. Areas on Te Tātua-a-Riukiuta /Big King where examination of aerial photographs and ground proofing indicate that all archaeological evidence will have been destroyed (within the red borders – indicative only). The area marked in yellow has been modified, however I could not determine whether all archaeological evidence in that area will have been destroyed. The summit area, the road up to it and pipeline route from it are assumed to have modified archaeological features and deposits but not destroyed all evidence.

These site inspections and meetings have resulted in the methodologies discussed in the following sections.

7. TREE REMOVALS

The following sections are based on the report by Treescape Ltd (2018) and their proposed tree removal methodologies, their proposed worksites on Te Tātua-a-Riukiuta /Big King. Conditions vary across the mountain as a consequence this section is divided into the areas as proposed by Treescape (Figure 8).

7.1 - A. Duke Street Approach

There are 49 trees to be removed from this area, from a combination of crane assisted dismantling, manual felling and manual dismantling. The majority of this area has been modified, and trees to be either manually felled or dismantled are either within areas of modification where no archaeological evidence will be found or of a small size where they can be manually handled without archaeological issue. Most of the trees to be removed are found on a central mound which has had a mixed history of modification, there are areas on it which have been quarried and completely modified, but equally other areas appear either untouched or only lightly modified and in these areas archaeological evidence in the form of midden was observed. It is probable other subsurface archaeological evidence will also be found within this densely wooded area. Each tree that is to be manually dismantled should have the archaeologist inspect the area to see if cushioning such as crash mats should be placed. There are many locations (all of the grassed areas) where cranes and other equipment can set up without any archaeological consideration as all of these areas are highly modified and contain no archaeological evidence.

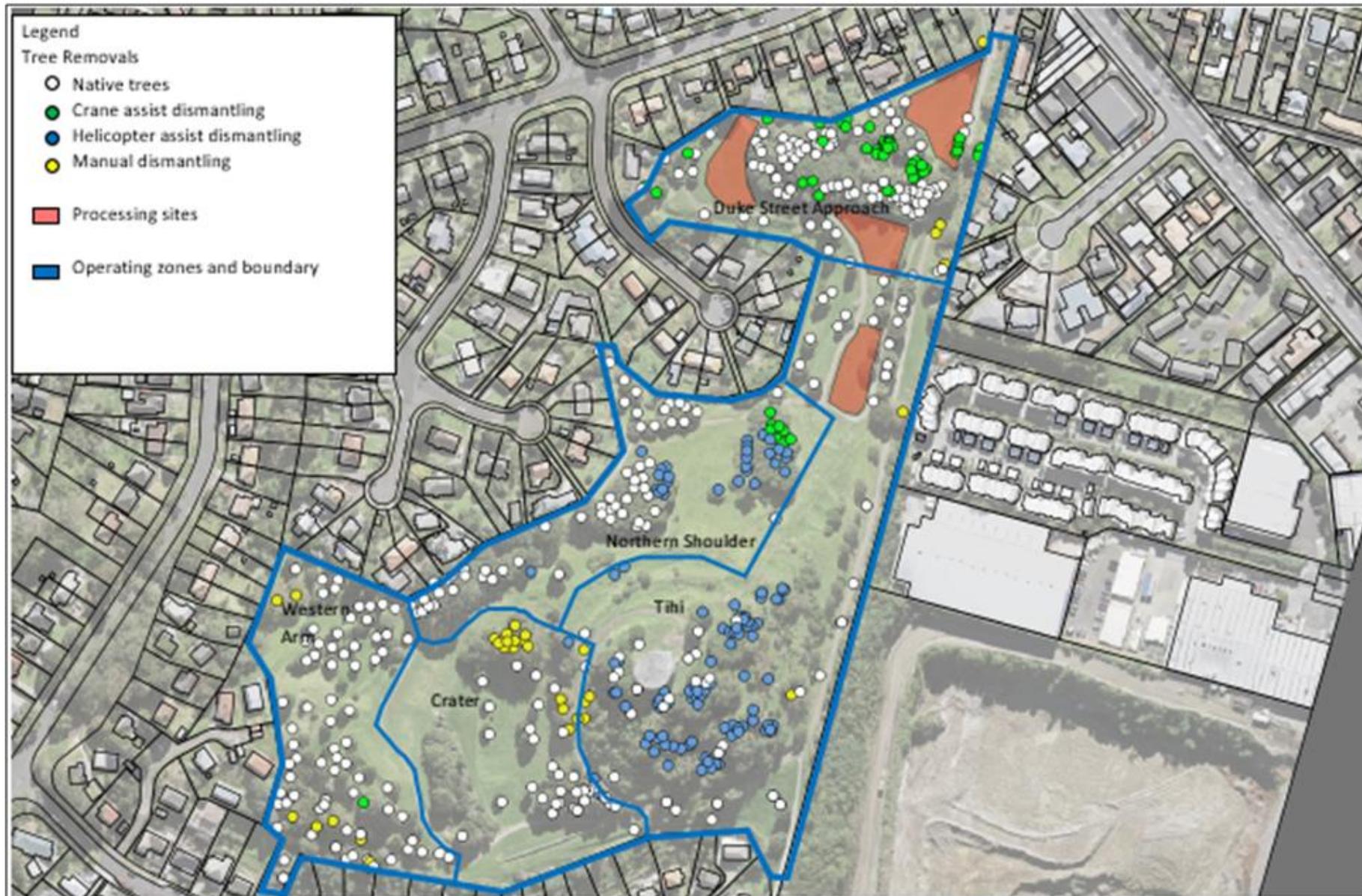


Figure 8. Tree Removal locations and areas as per Treescape Report

7.2 - B. Northern Shoulder

This area is one of the least modified areas and has a good deal of the archaeological evidence present, as well as slopes that appear to have no built archaeological evidence on them, but are likely to contain subsurface evidence such as midden, obsidian and other stone flakes. There are some terraces and pits. Treescape (2018 Table 3) have identified 36 trees to be removed from this area, most of which are in groves rather than individual trees scattered across the landscape. Trees in this area will be removed using Helicopter dismantling or by Crane assisted dismantling, there will be no archaeological effects. Treescape arborists in conjunction with the archaeologist should consider whether crash mats should be installed in individual cases to prevent accidental damage.

7.3 - C. Western Arm

The western arm consists of two terraced slopes of differing character either side of a ridge that splits this area in half. The terraces on the southern side of the ridge, as well as much of the top of the ridge are of Maori origins and relate to the occupation of Te Tātua-a-Riukiuta /Big King. The terraces on the northern side (Plate 1.) of this ridge relate to the immediately adjacent Watercare reservoir. Treescape are unable to traverse their machinery across the reservoir due to weight considerations. Treescape propose to use an excavator and tracked chipper to access the two large Oaks at the bottom of the slope beneath these earthwork terraces (Treescape 2018:12). The only concern is the Maori terraces to the south need to be protected that are on the only accessible route to these Oaks. There is also an already bulldozed track that provides access beneath the Maori terracing, however through the terraced area it appears that the past bulldozing utilised the Maori terracing as the route (Plates 2 and 3). I have examined the route through the cultural terraces and have been able to conclude that although modified by the bulldozer it has not reshaped them significantly and it is almost certain that there will be some intact subsurface archaeological evidence across them. Treescape (2018:12) propose to run a small excavator and chipper across this terrace. To protect the archaeology they would lay trackmat across the terrace which will separate and protect the terrace surface from the machinery and its weight. The proposition involves the project archaeologist defining the route and length of the route that requires protection. This is illustrated on Figure 9, which is schematic only and varies slightly from the exact route to be taken.



Plate 1. Modern earthworks terraces beneath the western reservoir in the Western Arm area.



Plate 2. The terrace which Treescape propose to traverse across to access the Oaks. It appears to be a cultural terrace relating back to the time of Maori occupation of Te Tātua-a-Riukiuta /Big King that has later been modified by earthworks.



Plate 3. The bulldozed track that would be used to access the Oak trees.

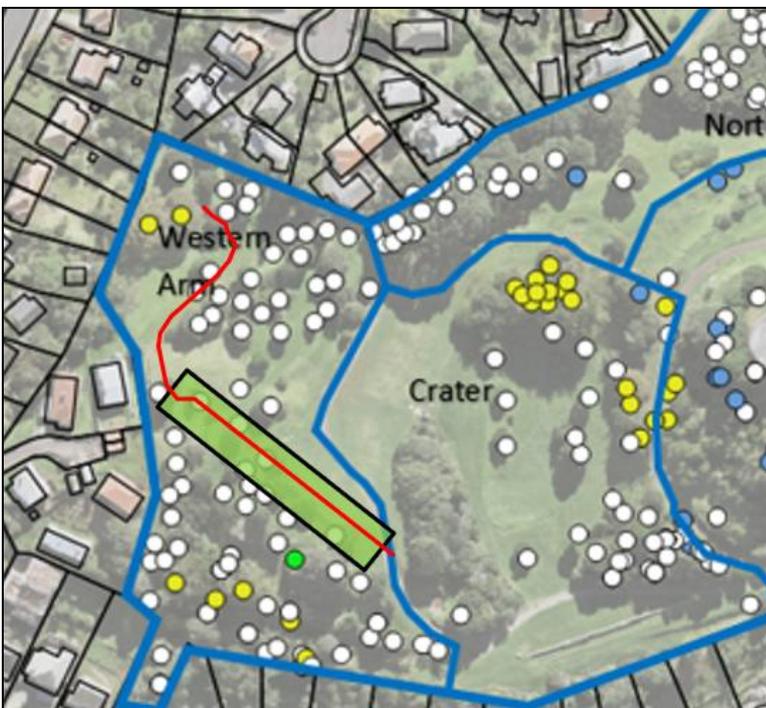


Figure 9. General tracking route for Oak trees (red line) and area requiring ground protection from machinery (green highlight)

Whilst the protection is in place Treescape also propose to use a small crane (2018:13) to remove and process a large Holm Oak (Figure 10). This would be undertaken on both the trackmat and with additional load bearing boards.

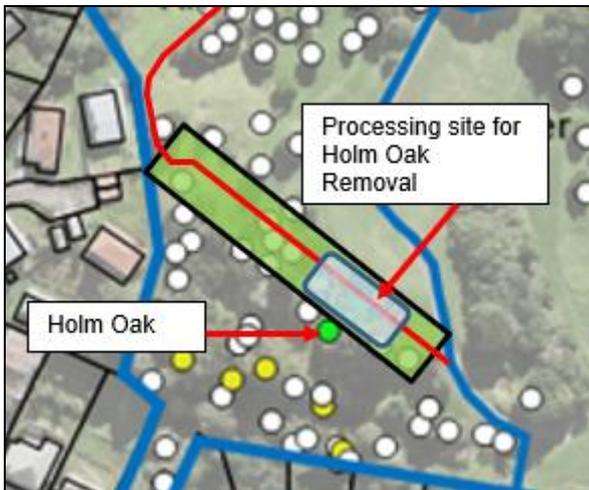


Figure 10. Location of the Holm Oak and proposed processing site.

The addition of the protective track matting for traversing this area, as well as the additional load bearing boards for the processing site (Figure 10) should have no archaeological effects as long as these works are only undertaken when ground conditions are dry.

Elsewhere in this area trees to be removed are on the areas of Maori terracing, some are adjacent to bulldozed and formed tracks, where these are to be removed it is proposed to remove them by manual dismantling. Treescape (2018:11) have devised the following methodology for removing the debris from this area. Trees “...will be manually dismantled and then transported carefully by hand on top of a robust matting that will prevent scarification of the ground and protect the archaeology prevalent in this area. Matting will be staked to the ground using a small gauge looped pin that will leave only a small hole of shallow depth.

As this matting won't protect the ground from impact damage, trees will not be felled. Rather they will be dismantled into manageable size pieces and then lowered and placed on to the matting by employing rigging techniques that offer maximum control with manual dismantling. When held by the wooded end of a branch, the branchlets and leaves act as a flexible, absorbent layer that distributes the weight of the tree section when being 'dragged' from the dismantling site to the processing site.”

Most of the trees to be manually dismantled in this western arm area are immediately adjacent to an earthworked path and can be easily passed from debris pile to chipper, some however will require shifting through the area. These cutting and removal methods will have no effect upon the maunga provided that the route of removing the debris is set to avoid archaeological features. The route for the mats to be laid from the tree to the processor/chipper for each individual tree or group of trees needs to be set onsite with consultation between the archaeologist and arborists on site at the time of works.

7.4 – D. Crater

There are 14 trees proposed to be removed from this area, the crater bowl itself appears to be both modified by significant earthworks and other areas appear to have been landscaped by minor earthworks, including the slopes, though the slopes on the eastern side and some of the northern side appear to be natural. It is proposed to utilise the route shown in Figure 11 to bring a small chipper onto site to process these trees, though some adjacent to the summit road may be processed from the roading instead.

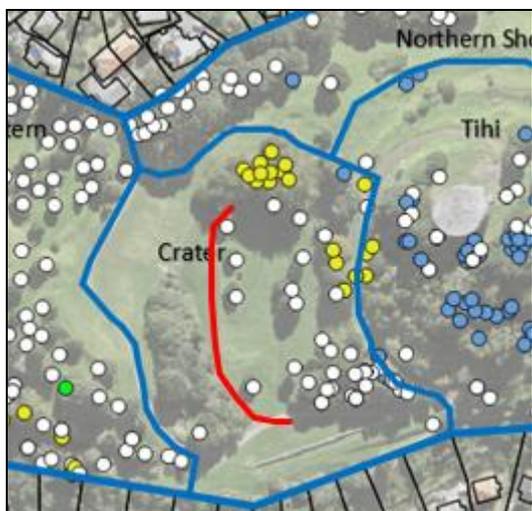


Figure 11. Route in the crater area for a chipper to access the trees on the northern edge. This route is along a modern terrace that was created during the construction of the water reservoir.

Trees here will be manually dismantled and then transported carefully by hand on top of a robust matting that will prevent scarification of the ground and protect the archaeology, some of which is midden scatter on the slopes between the trees and the chipper processing area. Matting will be

staked to the ground using a small gauge looped pin that will leave only a small hole of shallow depth. No archaeological impacts are foreseen using this methodology in this area.

7.5 – E. Tihi

There are 86 trees proposed to be removed from the Tihi area, this area encompasses both the Tihi and the majority of the terrace slopes beneath it between the Tihi and the formed access track beneath it. There are many terraces, pits and visible midden deposits in this area and it is the most archaeologically intensive and sensitive area. Treescape propose to remove the majority of the trees and debris with the assistance of a helicopter, lifting them to one of the four processing sites (refer Figure 8). This will have no archaeological effect, though in some circumstances a precautionary use of crash mats could occur where the trees are particularly large. This could be decided on a case by case basis between the arborists and the project archaeologist.

A few other trees, that are located immediately adjacent to the summit roads in this area are planned to be removed by manual dismantling, many of these are small and the laying of their parts on the ground will not have an effect. The extraction of the debris to process on the hard stand areas (the road to the Tihi) will be undertaken using operating methods for **Manual Dismantling in Sensitive Areas** as per the Treescape report (2018:11). Establishment of the route for the protective matting to be laid will be established between the arborists and the project archaeologist on a case by case basis.

7.6 – Wood Chip

Treescape (2018:11) states “*Wood chip will be distributed in suitable surrounding spots free of in situ archaeology.*” There are many locations on the maunga that contain archaeological evidence, and equally there are many others that have significant modification and no archaeological evidence. All chip to be disposed of on site should not be placed without consultation with the project archaeologist that the proposed locations are suitable.

7.7 – Processing Sites

All of the processing sites selected by Treescape are locations where past earthworks have occurred and there is no or limited archaeological evidence. These areas as outlined in Figure 3 of the Treescape report (Figure 8 of this report), of these areas only the southern most one requires any archaeological consideration.

The southernmost Processing Area (Plates 4 and 5) has been earthworked, cut and shaped, the earthworks appearing quite extensive on the 1959 aerials but are not clear enough for fine detail. There is a large rectangular pit shape present that is relatively shallow, visual examination suggests that it is the base of a Maori storage pit that was deeper than the earthworks that have occurred around it, however other possibilities exist for its origins and that it merely mimics the shape of an archaeological feature. Therefore it is unknown whether it is archaeological evidence or not without undertaking an archaeological excavation to investigate.

Treescape wish to use this location as a processing site and will need to park a crane in the vicinity to reach a grove of trees growing on the northern slopes above (visible on Plates 4 and 5).

Treescape (2018:9) propose that the *“pit will be protected by a combination of items such as track mats, load bearing boards and bearers, and tyres (if required).”* Further to the protection put forward by Treescape it would also be appropriate to limit works in this area to only when the ground conditions are dry to protect possible subsurface archaeological (should it have survived past works) from pugging and other damage.



Plate 4. The southernmost Processing Site looking towards the Tihi and Northern Slopes areas. This processing site has been earthworked and flattened in the past, however it is not clear whether it has extended preserved deep subsurface evidence at the southern end (the far end of this plate).



Plate 5. Close-up of the southern end of the Processing Area illustrating a cut at the base of the slope indicative of earthworks, the 1959 aerial photographs also indicate wide scale earthworks at this location, however the area of long grass is indicative of a pit being present, or at least the lower part of one from which the top has been taken off.

8. RESTORATION PLANTING PLAN

The following sections are based on the report by Te Ngahere (2018) and their proposed methods and locations for restoration planting. Conditions vary across the locations; as a consequence this section is divided into the areas as proposed by Te Ngahere (Figure 9) and discussed from the North to the South.



Figure 9. Proposed planting locations from Te Ngahere (2018)

8.1 WF7

This is in the area depicted in Figure 9, near the Duke Street entrance. This area has been totally modified and there will be no archaeological evidence in this area. There are no archaeological effects to planting in this area. As a precaution, as these plantings will be adjacent to the already existing plantings, many of which are on a modified mound that includes archaeological evidence, the project archaeologist should be involved in the set out to ensure that no new plantings encroach upon archaeologically sensitive areas.

8.2 Amenity Plantings

This includes some large specimen trees and some low native groundcovers to create an avenue at the Duke Street entrance replacing the existing Japanese cedar. This area is modified, and significantly cut by past works, there is no requirement for archaeological conditions.

8.3 Harakeke/pohuehue north

Te Ngahere (2018:6) describe the proposed planting in this area to be on “.... *banks between modified terrace formations*” and that the planting “.... *would replace current grass and broadleaf cover*” that “.... *will limit erosion and not impacting any historic defensive sightlines.*” These areas are modified, and significantly cut by past works, there is no requirement for archaeological conditions.

8.4 WF7 infill

The WF7 infill plantings are proposed in an area that has been earthworked presumably by works associated with the Watercare reservoir (refer the out of focus aerials of 1996 – Figure 6). The western edge is close to intact terracing, pits and probable subsurface evidence relating to the Maori occupation of Te Tātua-a-Riukiuta /Big King. The project archaeologist should assist with the set out of these plantings to ensure that none occur within archaeologically intact areas. Furthermore to ensure that there is no root encroachment from unsuitable species (such as the proposed Puriri) and to limit the chance of self sown individuals within the archaeological areas, plantings within 10m of archaeological features should be limited to species listed by the Department of Conservation as suitable for planting on archaeological sites (Jones 2007).

8.5 Harakeke/pohuehue south

This area within the area referred to as the Crater by Treescape has been modified by past works, especially related to reservoir and water pipe projects, there is no requirement for archaeological conditions, except that the project archaeologist should be involved with the set out to ensure that no planting occurs where surface or in-situ subsurface archaeological evidence maybe present.

9. ASSESSMENT OF HISTORIC HERITAGE

9.1 *Auckland Unitary Plan*

Te Tātua-a-Riukiuta /Big King is scheduled as an Historic Heritage Place in the Auckland Unitary Plan (AUP), item #1567: Big King/Te Tātua/Te Tātua O Ruikiutu pa R11_18 – Category B). The site is listed as having Additional Rules for Archaeological Sites or Features and as being a Place of Maori interest or Significance.

The Council uses a range of heritage to identify and evaluate historic heritage for scheduling:

- A. Historical
- B. Social
- C. Mana Whenua
- D. Knowledge
- E. Technology
- F. Physical attributes
- G. Aesthetic
- H. Context

Te Tātua-a-Riukiuta /Big King is scheduled in the AUP for the following Heritage Values;

- A. Historical: the place reflects important or representative aspects of national, regional or local history, or is associated with an important event, person, group of people, or with an idea or early period of settlement within New Zealand, the region or locality;
- D. Knowledge: the place has potential to provide knowledge through archaeological or other scientific or scholarly study, or to contribute to an understanding of the cultural or natural history of New Zealand, the region, or locality;
- G. Aesthetic: the place is notable or distinctive for its aesthetic, visual, or landmark qualities.

The historical values will not be affected by this process. The aesthetic values are contained within Sally Peakes report.

While archaeological study would be able to establish greater knowledge about the place, its location and the wider settlement of the Te Tātua-a-Riukiuta /Big King area, current technology would require largely invasive methods to do this. These are not proposed for this project.

Te Tātua-a-Riukiuta /Big King is prominent in the landscape in which it sits. Within the environs of the immediate Te Tātua-a-Riukiuta /Big King areas the Tūpuna Maunga dominates the skyline and is visible from many viewpoints across Auckland and between many of the other Tūpuna Maunga. Historically the many terraces, pits and archaeological earthworks of the mountain would have been a visually dominant feature.

The additional Rules for Archaeological Sites or Features under the AUP have additional controls and require assessment of the activity under the rules listed in Table D17.4.1. and Table D17.4.2. As noted earlier this site has considerable archaeological value and the focus of the assessment is how the works impact on these values. As it relates to the proposal, Conservation Planting (A23) and Tree Removal (A26) are discretionary activities. Non-invasive archaeological investigations are a permitted activity, where as other investigations are Restricted Discretionary activities.

Historic Heritage Objectives and Policies

Part D17 of the Unitary Plan sets the Objectives and rules of the Historic Heritage Overlay.

Objectives are contained at D17.2, and include:

- (1) The protection, maintenance, restoration and conservation of scheduled historic heritage places is supported and enabled.*
- (2) Scheduled historic heritage places are protected from inappropriate subdivision, use and development, including inappropriate modification, relocation, demolition or destruction.*
- (3) Appropriate subdivision, use and development, including adaptation of scheduled historic heritage places, is enabled.*

The proposed works are considered to be in accordance with the above objectives for historic heritage as they have been designed to enhance the values of Te Tātua-a-Riukiuta /Big King by removing trees that are damaging the maunga without causing any physical impact, except where earlier earthworks have already modified the form and archaeological features. Visual aspects of the archaeological features and the proposed plantings have been designed to remedy erosion issues currently evident on the Mountain assisting with the protection and conservation.

9.2 Assessment of Effects on Archaeological Features

Tree Removal Works

The methodology for removal of trees from this Tūpuna Maunga has been the avoidance of impacts to surface features as well as sub-surface material therefore minimising the potential for any archaeological material, whether identified or unrecorded to be impacted, therefore protecting the fabric of archaeological features from damage.

Removal of exotic trees will also benefit the visual aspects of the maunga allowing for the visible archaeological features to be more readily identifiable and viewed. This is particularly the case where older failing trees are present as their removal will enhance the shape of earthworked features that are hidden from the public viewshed.

Further, aside from the actual removal operations, the removal of exotic trees from an archaeological perspective is considered to have positive effects for the long-term preservation of Te Tātua-a-Riukiuta /Big King. As the rootplate of trees has the potential to disturb and destroy archaeology as they mature, removing trees can be beneficial to preserving *in situ* archaeological features. Secondly, as trees age, limbs can become weak and fail during periods of high winds or as a result of storm damage. Such events can also tear the rootplate from the ground damaging and exposing archaeology. Controlled removal is therefore favourable to uncontrollable and natural events. As some of the trees to be removed are getting towards the end of their natural life, they are even more susceptible to damage from natural events and the potential to impact on archaeology is higher.

Revegetation Works

An outline of the proposed revegetation works is contained at 8.1 – 8.5 above with proposed planting developed to avoid known areas of archaeology and to minimise ground disturbance therefore reducing the potential for any *in situ* archaeology to be impacted. There would appear to be no effects from this proposal to the archaeology of Te Tātua-a-Riukiuta /Big King.

10. CONCLUSIONS

Methods have been developed to remove trees from Te Tātua-a-Riukiuta /Big King (Treescape 2018) while avoiding and minimising impact on the archaeological features or unknown subsurface evidence.

Positive effects will arise from the visual enhancement of archaeological features as large exotic trees tend to conceal and confuse opportunities for visual appreciation of the landscape. This is particularly so for the pa and following the removals this element will be visible as the prominent feature of the maunga. Also from the pa the contextual landscape that make up its positioning will be better visible providing opportunities for its relationship to the landscape to be appreciated.

The restoration plantings have been designed to be placed where the mountain has already been modified and archaeological evidence will not exist.

This Heritage Assessment has focused on the archaeological values of this place. Te Tātua-a-Riukiuta /Big King has also has significant Mana Whenua values, for which I am not qualified to comment upon, there may be traditional or cultural concerns that may affect the proposal or the conclusions of this report that I am unaware of.

11. RECOMMENDATIONS

Noting that much modification has occurred over Te Tātua-a-Riukiuta /Big King, and that it may not be easy for non-archaeological professionals to discern I endorse the Tree Removal Plans (Treescape 2018) and Planting Plans (Te Ngahere 2018) subject to the following additional recommendations;

11.1 Tree Removals

- a) That as a pre-tree removal condition, a walk over between Treescape and the project archaeologist occurs to confirm / finalise the tree removal methodology for each area or in some cases individual trees, this should also include the placement and alignment of matting to protect surfaces from scouring. It would be logical that the walkover occurs at each stage should the works be carried out in stages.
- b) That where there is any consideration that damage to underlying archaeological features or subsurface evidence may occur, crash mats must be used to protect the ground surface.
- c) That the archaeologist establishes the route for the excavator and tracked chipper to take in the Western Arm, including where Trackmat is required to protect the terrace surface.
- d) That processing area associated with c) above (Figures 9 and 10) for the removal of the Holm Oak utilises the same Trackmat protection.
- e) The use of the terrace in c) and d) above is to be limited to when ground conditions are dry.
- f) Where trees are to be manually dismantled in the “terraced” area of the Western Arm, that aren’t immediately adjacent to where the chipper can be set up, shall have matting laid between them and the chipper to prevent scarification and gouging damage.
- g) The route for the mats to be laid from the tree or trees in f) above to the processor/chipper for each individual tree or group of trees needs to be set onsite with consultation between the archaeologist and arborists on site at the time of works.
- h) That the possible pit depicted in Plate 5 is protected and covered during the use of the southernmost processing area.
- i) That the use of the southernmost processing area depicted in Plates 4 and 5 be limited to when ground conditions are dry.
- j) No chipped material is to be left on site without confirmation from the project archaeologist that it is a suitable location without archaeological evidence.
- k) That a post works inspection is undertaken, either at the completion of all tree removal works or after each stage should the tree removals be staged.

11.2 Restoration Planting

- a) The project archaeologist should be on site for the set out of the WF7 plantings to define the limits of the adjacent archaeological evidence and to ensure no new plantings occur where archaeological evidence is or may be present.
- b) For the WF7 infill planting only species that are defined as suitable for planting on archaeological sites, as per the Department of Conservation (Jones 2007) publication or any updated list that is subsequently released by the Department of Conservation, should be planted within 10m of archaeological features or unmodified parts of the mountain. No planting should occur on archaeological features or unmodified parts of the mountain.
- c) The project archaeologist should be on site for the set out of the WF7 Infill plantings to define the limits of the adjacent archaeological evidence to facilitate recommendation b) above.
- d) The project archaeologist should be on site for the set out of the Harakeke/pohuehue south plantings to define the limits of the adjacent archaeological evidence and to ensure no new plantings occur where archaeological evidence is or may be present.

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