

**BEFORE THE QUEENSTOWN LAKES  
DISTRICT COUNCIL**

**IN THE MATTER** of the Resource Management Act 1991 (the "Act")

**AND**

**IN THE MATTER** of the Queenstown Lakes District Proposed District Plan  
Chapter 26 Heritage

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**EVIDENCE OF DR HAYDEN CAWTE  
17 June 2016**

New Zealand Tungsten Mining (#519/#1287)

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## 1. Introduction

- 1.1 My name is Dr Hayden Cawte, I am the managing director of New Zealand Heritage Properties Limited, a cultural heritage management consultancy firm.
- 1.2 I have over 14 years' experience in national and international heritage and archaeological consulting, cultural resource management, heritage resource management, heritage building and structure identification, recording and analysis, preservation and conservation, research design and material culture analysis.
- 1.3 I have lectured in archaeology, anthropology and cultural resource management at the University of Otago and James Cook University, Australia. This includes a course in the archaeology of mining.
- 1.4 I have a first class honours degree in Anthropology, a post-graduate diploma in commerce and a doctorate in archaeology from the University of Otago.
- 1.5 My PhD and research area is in archaeological and heritage mining and metallurgy. I have in the past, and continue to be, involved in the mitigation of effects for mining across the globe as it relates to heritage and archaeology.
- 1.6 I have worked on mines and metallurgical sites that span millenia including managing sites and site excavations throughout Southeast Asia.
- 1.7 I have attended University College London as a Marie Curie Fellow and the University of Cambridge post-doctorally as an Evans Fellow.
- 1.8 Furthermore, I am directly involved in the reuse and redevelopment of heritage buildings, heritage precincts and landscapes.
- 1.9 I am Chairman of the Board of Archsite – A GIS based software package that manages New Zealand's national database of archaeological sites.
- 1.10 I am a member of the New Zealand Archaeological Association as well as a member of the Association of Architectural Historians

1.11 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note. This evidence has been prepared in accordance with it and I agree to comply with it. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

## 2. **Scope of Evidence**

2.1 This evidence addresses Chapter 26 Heritage of the Proposed District Plan ("PDP") on behalf of New Zealand Tungsten Mining Limited ("NZTM").

2.2 My evidence relates specifically to the proposed scheduling of the Glenorchy Heritage Landscape ("GHL")<sup>1</sup> and the relationship between this landscape and modern mining.

2.3 In preparing this evidence I have reviewed the following relevant material;

- (i) PDP Heritage Chapter 26 as notified, Section 42A Report Chapter 26 and section 42A report Rural Appendix 1 revised chapter.
- (ii) A heritage and archaeological survey of the Glenorchy Scheelite mines (See Appendix A - Cawte, HJ., and D. Cropper, 2015. Whakari Conservation Area: Heritage Impact Assessment for proposed drilling and minimum impact exploration activities on EP40547, Glenorchy. Unpublished report for NZTM).
- (iii) The evidence of Richard John Knott on behalf of Queenstown Lakes District Council dated 02 June 2016.
- (i) Appendix 8: Consultant Report Heritage Landscapes (Queenstown Lakes District Council Heritage Landscapes Appraisals (based upon a desk top appraisal of published information; September 2014 - Jackie Gillies and Associates).
- (ii) Original and further submissions on PDP of NZTM.

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<sup>1</sup> Provision 16.12.7 Proposed District Plan

### **3. Executive Summary**

- 3.1 Glenorchy and the Glenorchy Heritage Landscape have a strong connection to mining. Tungsten mining began in the 1880's on Mt Judah and have continued in various forms since.
- 3.2 There are 17 sites registered with Archsite, the national database of archaeological sites, of which one, meets the definition of a site under the Heritage New Zealand Pouhere Taonga Act 2014.
- 3.3 A completed survey of the area (Cawte and Cropper 2015) shows that a range of mining evidence is present representing all parts of the mining process and it is these elements that form a "complex" of sites contributing to the Glenorchy Heritage Landscape (GHL).
- 3.4 The protections proposed within the PDP are too broad and do not allow/have means of valuing the continuation of the industry which has contributed to the landscape.
- 3.5 The GHL is a nationally significant heritage landscape. This does not, however, rule out the continuation of modern mining and other activities whereby these activities maintain core values, and where heritage features and archaeological sites are managed while enhancing user and visitor experience through collaboration. Similarly providing economic benefit to community which further enhances local responses to heritage protections and management.

### **4. Background/History of mining in Glenorchy**

- 4.1 As a result of the gold boom of 1862, mining settlements sprang up throughout much of the Lake Wakatipu region, including at the northern end of the lake, in an area that became known as Glenorchy. While gold mining and pastoral development were the initial reasons for the settlement at Glenorchy, it was the mining of scheelite that was to become the area's primary industry. Scheelite (an ore of tungsten) was first noted in Glenorchy by the gold miners in the 1860s, and commercial mining of this resource began in 1880s. The first scheelite reef was reputedly discovered on Mt Judah by William Rainey, C.C. Boyes and Simon Wilson in 1884. In 1885, it is reported that there were 30 men employed at the mine and in the construction of Mt Judah Road (Otago Witness, 1885).

- 4.2 Shortly after commercial mining began, the market slumped and the mine was closed in 1888 (Lake Wakatipu Mail, 1888). Small-scale mining continued after the mine closure, and in 1900 four tons of scheelite were awaiting shipment (Lake Wakatipu Mail, 1900).
- 4.3 It was not until 1900 that demand for scheelite rose to levels requiring industrial mining operations again (Mutch, 1969, p. 3). The level of mining activity in the GHL follows the wax and wane of global demand for tungsten, with operations continuing to the present day.
- 4.4 During the war years of the 20<sup>th</sup> Century, demand for scheelite increased and mining recommenced on an industrial scale with the state becoming involved.
- 4.5 Small-scale mining continued throughout the early 1960s, with most of the work being at the Heather Jock Mine (Bradshaw, 1997, pp. 82–83). Incentives from the then Mines Department saw an increase in mining activity in the late 1960s, with new roads being bulldozed to the Scheelite lodes (Bradshaw, 1997, p. 84). This period of activity also corresponds with wider activity on Mt McIntosh and a tendency for small open cast mining or stoping across the GHL.
- 4.6 Historical research and heritage survey (Cawte and Cropper 2015) (see appendix A) undertaken as part of NZTM's application for an access arrangement with the Department of Conservation has shown the GHL to be a 'complex of sites' that include the primary evidence for mining in terms of mine entrances, adits and sluiced areas, the mining by-products of waste rock and tailings, and the necessary mining infrastructure such as processing areas, roads and water races. For the 130 plus years of mining in the area, evidence shows that extraction swings between small scale and industrial operations.
- 4.7 The small, single adits with tailings are likely to represent these intermediary, small-scale periods of mining activity between periods of industrial activity.
- 4.8 There are 17 sites (E41/208-E41/224) within the GHL that are registered on ArchSite, New Zealand Archaeological Association's Archaeological Site Recording Scheme ("NZAAASR"). These sites primarily represent twentieth century (post-1900) mining operations. Generally, post-1900 mining sites are not protected under the Heritage New Zealand Pouhere Taonga Act 2014 ("HNZ Act") unless they have been declared

'archaeological sites' by Heritage New Zealand. None of the post-1900 sites recorded in EP40547 are declared archaeological sites.

- 4.9 While only one previously recorded site (in ArchSite) is known to have been worked prior to 1900, historical research also demonstrates other pre-1900 sites exist in the area. The Dray Road (now referred to as Mt Judah Road) was constructed in 1885 and a water race extended from the Buckler Burn to the area where the ore was crushed and dressed (Otago Witness, 1886).
- 4.10 Additionally, it is reported that small-scale mining continued after the closure of the Wakatipu Scheelite Mining Company (Lake Wakatipu Mail, 1900); however, it is not clear from where this ore was mined.
- 4.11 Archaeological sites have a well-defined criteria for registration with little ambiguity in the legislation. An archaeological site is any place that is associated with human activity or use prior to the year 1900<sup>2</sup>. Sites after this date cannot be considered archaeological. Places of human activity after this date, can however, meet the criteria for "historic heritage" under the RMA. Historic heritage are resources that "contribute to an understanding and appreciation of New Zealand's history and cultures"<sup>3</sup>In this case, there is some ambiguity. Despite the reference to "historic" heritage, there is no clearly defined period before or after which, sites are considered of "historic" heritage as opposed to being simply remnants of contemporary society. Thus, the identification of historic heritage sites and the determination of their value are open to

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<sup>2</sup> Archaeological site defined in HNZPT Act at s2:

(a) any place in New Zealand, including any building or structure (or part of a building or structure), that—  
 (i) was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and  
 (ii) provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand

<sup>3</sup> historic heritage—

1. (a) means those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, deriving from any of the following qualities:
2. (i) archaeological:
3. (ii) architectural:
4. (iii) cultural:
5. (iv) historic:
6. (v) scientific:
7. (vi) technological; and
8. (b) includes—
9. (i) historic sites, structures, places, and areas; and
10. (ii) archaeological sites; and
11. (iii) sites of significance to Māori, including wāhi tapu; and
12. (iv) surroundings associated with the natural and physical resources

discussion when considering what should and should not be included, and therefore, protected.

- 4.12 As noted above, some of the sites listed as archaeological in the NZAAASR within the GHL technically do not meet the definition of an archaeological site under the HNZ Act but can still be considered as valuable heritage sites. There are, however, a number of “heritage” sites that are not recorded as archaeological sites despite meeting the definition under the HNZPT Act. Therefore in a mining complex that has mining remnants from the 1880’s into the 1980’s of which only one site meets the definition of an archaeological site, emphasis is then placed on the determination of ‘historic heritage’ and their values amongst the remaining features.

## 5. **Consideration of values**

- 5.1 I have undertaken heritage and archaeological surveys of both the Mt Judah/McIntosh (across the NZTM exploration permit within the GHL) and Mt Alfred mining complexes in the Glenorchy area. I have considered the range of mining evidence and evaluated the value and significance of the archaeological and heritage features within the context of local, regional, national, and international importance (Cawte and Cropper 2015).
- 5.2 I consider the GHL an important and nationally significant heritage landscape. In my research and survey of the area I have identified three categories of evidence relating to the occupation and use of the area for mining. These are:
- (a) Primary evidence for the activity in the form of adits, stopes, sluiced faces
  - (b) Secondary evidence for the activity in the form of waste rock, tailings, and artefacts
  - (c) Tertiary evidence for the activity in the necessary support services and infrastructure; water races, terraces, huts, tracks and other services.
- 5.3 The definition of a Heritage Landscape in section 2 of the PDP defines the criteria for how a heritage landscape is considered. However, there is a lack of an obvious assessment methodology for identifying and

assessing the value of proposed heritage landscapes. While Mr Knott evaluates the methodology for considering individual item scheduling to the QLDC PDP,<sup>4</sup> there is not the same scrutiny given to Heritage Landscapes. How has value and significance been measured in the case of the GHL?

- 5.4 The scheduling of the GHL in the PDP has been considered by Jackie Gillies and Associates however, there is an absence of methodology within the Appendix 8 report on how value and significance of the landscape has been determined, i.e. are individual features evaluated that culminate in a overall value?
- 5.5 It is important, however, in the case of mining complexes to identify all parts of the mining process weighing them evenly in order to understand the relationship and importance of these categories to the overall value of the area.
- 5.6 Thus, it is often more important to maintain/protect the ratios of evidence rather than the most prevalent or visible.
- 5.7 In reference to 26.12.9.1,2,3, of the PDP, this protection appears to favour or bias one form or type of feature. Similarly, section 26.12.9.3 is confusing and needs clarification.
- 5.8 The term “mining” or “mines”, in particular - how it is referenced in 26.12.9.1,2,3 appears to favour and thus “value” physical mine openings over other forms of evidence which are equally as important in maintaining the visitor experience and interpretation as a significant heritage (mining) landscape.
- 5.9 Protection of key features therefore needs to be more specific and must ensure that a ratio/range of the types of mining evidence is protected.
- 5.10 It is difficult to evaluate any subterranean features within mining shafts and adits owing to the difficulties in access and health and safety requirements. Typically, the low amenity value of any such features renders them to be of low significance.
- 5.11 26.12.9.3. refers to the protection of all “known” archaeological sites and all other “historic places” within the GHL. Using the term “known” adds ambiguity to the clause. It must be questioned, to whom are these sites

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<sup>4</sup> Para 3.1-3.10 evidence in chief, Richard Knott, dated 02 June 2016



to be known? Under the HNZPT Act, there is only one site that meets the definition of an archaeological site.

- 5.12 Like 4.11 above, the term “Historic Places” (26.12.9.3) in the context of the GHL is ambiguous when discussing a heritage landscape that is comprised of mining features and materials that were created during the last major mining episode in the 1980’s. The use of “historic” here could be interpreted as protecting only “old” sites and features despite the modern mining features having a place in the interpretation of the area.
- 5.13 As stated above, it is important to consider the range and ratios of features within the landscape before considering significance and protections.
- 5.14 Any activity in the GHL must consider the relationships between all parts of the mining process when assessing future impact upon the Heritage Landscape.

## **6. Consideration of uses / Mining in the GHL**

- 6.1 The main reason for scheduling heritage places in a district plan is to ensure the effective protection and management of the heritage resource in order to maintain a connection with past events, experiences or activities. How effectively a heritage place or building achieves this link, is considered by how well it can be interpreted by novice persons. As an example, if the fire service leave a building, how well it maintains this connection will be determined by how easy it is to identify that the building was a fire station after it has been afforded a new use.
- 6.2 The easiest form of interpretation is to enable the continued occupation of a site by those occupants who in themselves, contribute to the understanding of a site or overall site value.
- 6.3 Thus, it is important also that where possible, the values associated with the original or long-term occupiers are maintained and original use and/or the values for which make a place a heritage space are maintained.
- 6.4 The PDP does not have a means of valuing the ongoing occupation by an industry or original or long-term occupier, which in themselves, contribute to the overall historical, social and cultural significance of an area.

- 6.5 The GHL is an important heritage landscape created by interdigitating periods of mining. However, importance does not preclude the reuse of heritage places, spaces and areas or the continued use of the area in the manner in which it contributes to the historical and social significance and value. In fact, reuse/continued use is encouraged as a means of effective management and protection and is allowed for in regional and district plans (under the RMA). Similarly, section 26.5.2 of the PDP provides for the sustainable use of historic heritage features.
- 6.6 Heritage is not a static quality that has already been “produced” but is an evolving and dynamic quality that responds to the community. In heritage management and protection a desirable situation is one in which the original, or long term occupier maintains a connection to the site. This situation has implications when considering the ongoing viability and management of heritage sites, features and structures. Thus when it comes to modifying that site, impact is balanced with the benefits of maintaining that connection.
- 6.7 Where an existing owner/tenant has maintained a long history with a building or place, and that occupation contributes to the value, weight needs to be given to their continued use of the space and the ease in which this can occur. The same can be said for mining in this Glenorchy Heritage Landscape
- 6.8 Consider the industry of farming and the heritage area of Walter Peak Station. Here the industry of farming is inextricably tied to the heritage place and furthermore, its current importance to the tourism market.
- 6.9 Tourists follow an original route via the Earnslaw steamship, understanding the journey; they visit a working farm, see the livestock, the farmers, and get to understand the industry, its history, and importance to the Region. Also, the revenue it provides helps to maintain the buildings, the farm and the station and contributes to the local economy while allowing visitors to understand the cultural history. In contrast, imagine then, a loss of connection to this industry and the impact it would have on both the heritage place and the tourist market. It would devastate both.
- 6.10 Here it is vital to maintain the farming industry connection to Walter Peak Station in order to maintain an important heritage place.

- 6.11 A loss of connection can occur in situations where there are added pressures to either the industry or the heritage place - be it economic, legislative, regulatory and/or environmental.
- 6.12 In situations where an economic re-use for a heritage place or building can occur, the benefits of the economic return can be seen in the improvement of service offerings and maintenance. Improvements in amenity values of heritage places and buildings can often be realised through collaborations with other agencies and in mitigation measures where impact occurs.
- 6.13 Mining was vital to the development of Glenorchy as a town and can be considered central to the cultural history of this community.
- 6.14 In maintaining a connection to this area, any new mining will require infrastructure in order to function. Roads and other infrastructure can be placed in such a way to minimise impact on existing features and visitor experiences and can be organised during the mine planning process subject to mitigation measures.
- 6.15 Thus, in consideration of the above, I believe it advantageous to the GHL and Glenorchy to maintain a connection to modern mining that can allow positive mitigation outcomes to protect and promote heritage, archaeology and tourism.

## **7. The GHL in a global context**

- 7.1 Jackie Gillies and Associates in their report on Heritage Landscapes state that despite being a nationally significant area "*The scheelite mines at Glenorchy are not well known to the wider public and have a low level of information/signage available, which makes the interpretation and appreciation of their national heritage significance challenging*" (page 13)– a statement particularly agree with.
- 7.2 The GHL is a significant area and nationally important, however the GHL is not well known and the level of interpretation made available to the public does not do it justice. This means that most novice persons visiting the area will not appreciate the complexity and sequence of mining evidence on show.
- 7.3 Similarly, the GHL does not function the same way that other significant heritage mining complexes do around the world. In these cases, there

are mine tours, mine open days, subterranean visits, and education facilities.

- 7.4 The best heritage mining complexes around the globe are those that are not just a snapshot of a period but instead show a sequence of mining and in doing so highlight advances in technology and in methodologies that are easily interpreted by visitors.
- 7.5 Of the great complexes, they showcase the mining cycle, the wax and wane of demand. Mines in Devon span 300+ years in the industrial era, the likes of Rio Tinto (the region not the company) span millenia. The salt mines of Hallstatt Austria, (Mt Salzberg) have 7000 years of occupation and reoccupation.
- 7.6 Similarly, the Bex salt mines in Switzerland have been mined from 1684 to the present. Visitors are able to view this mine and underground tours are accessible to visitors.
- 7.7 In each of these cases, tourists are able to enter mines and understand the full depth of mining history. Currently in the GHL, this is not possible. It is too dangerous to enter mine shafts and adits, and the current visitors to the site are not provided with sufficient means of understanding the complex's importance. With some assistance however, the GHL could be an international attraction.
- 7.8 In maintaining a connection to the GHL, mining of the area in a sustainable manner can provide the economic stimulus for enhancing the tourist and visitor potential of the GHL. The area is not currently well known despite its national importance and interpretation and signage is limited. These elements could be remedied in collaboration with Heritage New Zealand and DoC.

## 8. **Conclusions and recommendations**

- 8.1 Heritage buildings and places are important avenues for understanding past events, experiences and changes to the socio-economic and political environments.
- 8.2 The PDP has not identified the method utilised for assessing value and significance under which heritage landscapes are to be scheduled.
- 8.3 Accordingly, the key features to be protected within the GHL appear general and on the face of it, to contain feature bias.

- 8.4 I recommend that protections under 26.12.9.1,2 be more specific rather than the general “mines”. Mining involves many parts and thus the evidence for mining is varied and the types of remains within the complex represent different parts of the process. Protecting “mines” tends to suggest the physical opening to extract ore; however, this reflects only one type of evidence that could create protection bias.
- 8.5 Under 26.12.9.3, few sites within the GHl meet the legislative definition of an archaeological site. Other sites that do meet the definition have not been recorded and thus, are not considered under the “known” site protections. Protection of archaeological sites is afforded under the HNZPTA and allows for their modification or destruction through the authority process.
- 8.6 It is better to understand the full nature of evidence, evaluate all parts, and mitigate in this context which could mean allowing the modification to some physical features such as adits to better protect and manage the range of sites in the complex.
- 8.7 I place less emphasis on subterranean features given their low amenity value (ie. Within adit as opposed to subsurface archaeology). A modern mine however, allows for the improvement and surety of other mine entrances and shaft meaning they can become accessible, greatly increasing their amenity value and allows patrons to interpret the workings, and contrast this with modern techniques.
- 8.8 The PDP does not have a means of valuing the ongoing occupation by an industry, or an original or long-term occupier, which in themselves, contribute to the overall historical, social and cultural significance of a space, place or building. Thus, does not appear to allow for the sustainable use of historic heritage.
- 8.9 Maintaining a relevant connection to a heritage area, place or building by an industry, a tenant or occupier which contribute to the overall historical, social and cultural significance is the easiest form of interpretation.
- 8.10 For this reason and those stated above, I recommend that modern mining be provided for within the PDP to maintain a connection within GHl subject to identification and management of heritage and archaeological features and sites within the complex. In particular where doing so will meet the objectives of 26.5.4 of the PDP- *To enhance*

*historic heritage features where possible* through its proposed policies;

26.5.4.1 - Encourage opportunities to enhance historic heritage features, including the need for the provision of interpretation and, by offering possible relaxations in rules elsewhere in the Plan, accommodate better planning outcomes for heritage on a case by case basis. 26.5.4.2 - Recognise the value of long term commitments to the preservation of heritage values in the form of covenants and consent notices. 26.5.4.3 - Accept that ongoing improvements to buildings, including earthquake strengthening and other safety measures, will assist in providing for their ongoing use and longevity.

**17<sup>th</sup> June 2016**

**Hayden Cawte**

**Appendix A. Heritage Impact Assessment. Unpublished report submitted to the Department of Conservation in application for an access arrangement.**

Cawte, H.J., and D. Cropper. 2015. Whakari Conservation Area: Heritage impact assessment for proposed drilling and minimum impact exploration activities on EP40547, Glenorchy. Unpublished report for NZTM.