

BEFORE THE SPECIAL TRIBUNAL, CROMWELL

IN THE MATTER OF The Resource Management Act 1991

AND

IN THE MATTER OF An Application to Amend the Water Conservation (Kawarau) Order 1997 in Respect of the Nevis River, Pursuant to Section 216 of the Act

BY New Zealand Fish and Game Council and Otago Fish and Game Council

STATEMENT OF EVIDENCE OF DR MATTHEW SCHMIDT FOR AND ON BEHALF OF THE NEW ZEALAND HISTORIC PLACES TRUST *POUHERE TAONGA* (NZHPT)

3 June 2009

Introduction

1. My name is Dr Matthew Schmidt and I am employed as the Regional Archaeologist Otago/Southland for the New Zealand Historic Places Trust *Pouhere Taonga* ("NZHPT") based in the Otago/Southland Area Office, Dunedin, on whose behalf I am giving evidence.
2. I have Bachelor of Arts from the University of Otago, Masters of Arts (1st Class) in Anthropology from the University of Auckland and a PhD in Sciences from the University of Waikato specialising in the radiocarbon dating of New Zealand archaeological sites. I have previously worked as an independent Archaeological Consultant in the Waikato, Otago and Southland and as Archaeologist for the Otago Conservancy of the Department of Conservation based in Dunedin. I have published articles in refereed journals and published a book titled *Radiocarbon Dating New Zealand Prehistory Using Marine Shell* (British Archaeological Reports International, United Kingdom). I have visited archaeological and historic sites in over 35 countries giving me a good perspective on the importance of New Zealand archaeological and historic sites on a national and international level. Since 2004 I have been and still continue to undertake archaeological/historic field surveys of Pastoral Leases involved in the Tenure Review process on behalf of the Crown where I am required to evaluate the significance of archaeological sites. In September/October 2008 I was a guest of UNESCO for five weeks as the New Zealand Archaeology Representative to the Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO in Nara, Japan on a course on the *Research, Analysis and Preservation of Archaeological Sites and Remains*. In February 2009 I was appointed International Correspondent for the Cultural Heritage Protection Cooperation Office, Asia/Pacific Cultural Centre for UNESCO in Nara, Japan.
3. I have visited the Nevis Valley at least six times in the last four years to revisit previously recorded archaeological sites and record new sites during various fieldwork such as for the Tenure Review of the Loch Linneh pastoral lease. I am therefore very familiar with the archaeological surveys previously undertaken in the valley.

4. I have sighted, read and agree to comply with the Environment Court's Practice Notes on Alternative Dispute Resolution, Procedure at Appeal Hearings and Expert Witnesses.

Purpose of this Evidence

5. I am one of four NZHPT staff presenting evidence in support of the NZHPT's submission on a Variation to the Water Conservation (Kawarau) Order 1997 ("the Order") in respect of the Nevis River as sought by the New Zealand and Otago Fish and Game Councils (Fish and Game).
6. I have read and considered the Application by New Zealand Fish and Game Council and Otago Fish and Game Council to Amend the Water Conservation (Kawarau River) Order 1997 (KRWCO) in respect of the Nevis River (as prepared by Anderson Lloyd Cauldwell, Dunedin and placed by the Ministry for the Environment on Website <http://www.mfe.govt.nz/issues/water/freshwater/water-conservation/Kawarau-Application.pdf>).
7. My understanding of that application is that Fish and Game New Zealand seeks to vary the Order in respect of the Nevis River by adding a prohibition on damming and diversion of the River, a condition on water takes, deletion of Clause 7 of the Order which permits hydro-electric development on the River and recognition of the outstanding historic and cultural characteristics of the Nevis River catchment.
8. I have also read and considered the following reports:
 - Hamel, J. 1994. *The Cold Sequestered Nevis*. Report for the Department of Conservation. Conservation House library, Stuart St., Dunedin.
 - Hamel, J. 1996. *Power in the Upper Nevis: Historic Sites on Glen Nevis*. Report for the Department of Conservation. Conservation House library, Stuart St., Dunedin.
 - Hamel, J. 2001. *The Archaeology of Otago*. Department of Conservation, Wellington.
 - Middleton, A., 2005. *Archaeological Sites in the Lower Nevis Valley*. A report prepared for Pioneer Generation Ltd.

9. My evidence considers the archaeological evidence present in the Lower Nevis and how any hydroelectric development on the Nevis River at the Nevis Crossing will impact on these archaeological sites. I will briefly describe the archaeology of the Nevis Valley itself to provide a general understanding of the importance of the valley system for Otago's heritage. Secondly, I will present what archaeological/historical evidence has been derived from archaeological research on the Lower Nevis since the original Water Conservation Order application for the Kawarau catchment was being considered in 1992-1993. This will be illustrated through research I have been undertaking on early survey maps of the Lower Nevis, and then a discussion on the archaeological field evidence recorded by Hamel (1994) in *The Cold Sequestered Nevis*, Middleton (2005) in *Archaeological Sites in the Lower Nevis Valley* and me in the Lower Nevis. Thirdly, I will critique Middleton's report on the archaeological and historic sites in the Lower Nevis produced for Pioneer Generation to assess the impact of a potential hydroelectric development at the Nevis crossing on these sites. Finally, I will show how the Department of Conservation's (DoC) Significant Inherent Values (SIVs) criteria are applicable in determining whether Hamel's (1994) or Middleton's archaeological reports more accurately represent the Significant Inherent Values for historic resources on the Ben Nevis and Craigroy pastoral leases in the Nevis Valley.

10. The purpose of this evidence is to show that the archaeological landscape of the Lower Nevis is of national importance and that to protect this historic resource, the KRWCO should be amended to prevent damming of the Nevis Valley. It will be seen that the importance of the Lower Nevis lies in the interrelatedness of all of the archaeological and historic sites in the valley where the heritage as a whole is more important than the sum of its parts. The segregation or loss of any of that heritage would therefore severely diminish the significance of the history represented in the Lower Nevis.

Brief Overview of the Archaeological/Historic Heritage in the Nevis Valley

11. The Nevis Valley is a unique area of Otago in that as an archaeological landscape, it has been virtually untouched by any modern developments (Figures 1 to 6). This has meant a significant number of archaeological sites from a range of time periods in the New Zealand's history are still present today.

12. The majority of sites are of Pakeha/Chinese origin and are related to alluvial gold mining from at least 1862 to late 20th century, meaning this valley contains possibly the most preserved sequence of gold mining history in Otago. Typical site types present are water races, sluice faces, dredge ponds, sod and stone walled huts, corrugated iron and cement structures, extensive tailings, sluice pipes and mining equipment. Other sites identified in the valley relate to 19th century farming which commenced in the valley in the 1850s and community settlements and social structures (such as a racecourse), coal mining, dray and access tracks, and old telecommunication posts and fixings (see Hamel 1994, 1996; Middleton 2005).
13. The valley was also important to pre-contact Maori as an inland trail through to the West Coast (Anderson 1986). Two moa-hunting sites identified as F42/5 and F42/7 under the New Zealand Archaeological Association Site Recording Scheme (these Site Record Forms are provided in Middleton 2005) and which possibly date to as early as the 14th century were recorded by historian Philip George in 1917. Site F42/5 is located at School House Creek but appears to have been destroyed in the early 20th century by dredge mining. The exact location of site F42/7 has yet to be identified.
14. Previous archaeological surveys of the Nevis Valley by Hamel (1989, 1994, 1996), Middleton (2005) and others have illustrated that many sites recorded in the valley are inter-related in the landscape and more detailed research on past Maori, European and Chinese activities in the valley is required. Hamel (1994:38) has describe the valley as “...*the most intact goldfields’ landscape in Otago...*” with Middleton (2005:29) believing, “*The landscape of the Lower Nevis Valley is an important, unique historic complex that deserves further comprehensive research*”.
15. The effects of past and recent developments in Central Otago along the Kawarau, Shotover and Arrow Rivers and the creation of Lake Dunstan and Lake Roxburgh, have meant that possibly no other valley or waterway in Otago can be viewed as depicting a virtually undisturbed snapshot of the varied uses of a landscape by humans as seen in Nevis Valley over a *ca.* 700 year period. This makes the Nevis Valley of highest significance as an archaeological landscape for

New Zealand and hence its eminent *Area of Outstanding Landscape Value* notation in the Central Otago District Plan.

The Archaeological Evidence of the Lower Nevis Valley Archaeological Landscape

Archaeological & Historic Research of the Lower Nevis Valley Post-Signing of the KRWCO

16. The KRWCO was considered in 1992-1993 before any detailed written research on the history and archaeology of this part of the Nevis Valley had been undertaken. This meant that no parties involved in the KRWCO discussions had an informed understanding of what the effect would be on the heritage present if the Lower Nevis was dammed.
17. It was not until September 1994 that the first report on detailed archaeological research for the Nevis was presented to the Department of Conservation. Hamel's (1994) report described the results of archaeological fieldwork on the Ben Nevis and Craigroy Pastoral Leases as part of the Tenure Review process for these properties. The fieldwork was undertaken on the Craigroy Pastoral Lease in March 1990 and on Ben Nevis Pastoral Lease in April 1994 comprising a total of four days in the field. This report is provided with my evidence as a key component in discussing the heritage significance of the Lower Nevis archaeological landscape (Appendix 1).
18. Since Hamel's (1994) report, Hamel undertook further research in the Upper Nevis in 1996 as part of the Tenure Review of Glen Nevis Pastoral lease. These findings were reported in 1996 and illustrated not only the extensive nature of the pastoral and gold mining heritage in this part of the Nevis Valley, but its dependent relationship with the Lower Nevis during the 19th and 20th centuries.
19. Middleton reported on archaeological sites in the Lower Nevis for Pioneer Generation in 2005. The results of this assessment are discussed below and a full copy of her report has been provided (Appendix 2).
20. In 2008/2009, the NZHPT began researching the Lower Nevis in recognition of the importance of the heritage present as identified by Hamel in 1994 but also as

identified by me in 2007 when I was researching for the *Gazettal* of all 20th Century Gold Mining Sites as Archaeological Sites on the Upper Nevis Remarkables Conservation Area (Schmidt 2007) (Appendix 3). *Gazettal* is a process where under Section 9(2) of the Historic Places Act (“HPA”) (1993) the NZHPT may, by notice in the Gazette and by public notice, include sites that are post 1900 as archaeological sites, thereby giving them the same regulatory protection as an archaeological site as defined in Section 2 of the HPA.

21. The current NZHPT research incorporates the historic and archaeological data currently available for the Lower Nevis and it being presented by Heather Bauchop of the NZHPT.

A Summary of the Recorded Historic and Archaeological Evidence in the Lower Nevis Valley.

22. I will present below some of the key findings of the research by Hamel (1994), Middleton, the NZHPT and my own research for the Lower Nevis.

23. In presenting these key findings, it must be recognised that:

- Archaeological sites as defined by the HPA (1993) are locations of where pre-1900 activity has taken place and which can be investigated through archaeological means. For the Nevis Valley, the 19th and 20th century heritage is so intertwined and mixed that when an archaeological site is discussed by Hamel (1994), Middleton (2005), NZHPT and me, the 20th century evidence is also considered part of the archaeological record. Please see Schmidt’s (2007) *Gazettal* proposal for the Remarkables Conservation Area in the Upper Nevis for a discussion on the interwoven nature of the archaeological evidence in the Nevis valley (Appendix 3).
- There has as yet been no systematic survey of the Lower Nevis (or in fact the Nevis Valley). There are more archaeological sites to record and these may be of Maori, Pakeha or Chinese origin. To illustrate this, data from sites I have recorded in addition to those recorded by Hamel (1996) and Middleton (2005) during recent visits, are presented below.

- Hamel's (1996) original survey, the NZHPT's and my own research is not comprehensive. Hamel was restricted to only four days to survey both the Ben Nevis and Craigroy pastoral leases and so the archaeological survey for the leases was not complete. Middleton's (2005) survey also was not comprehensive, as will be discussed below.

24. When researching the archaeology of valley systems such as the Lower Nevis, two sources of evidence can be used to determine what archaeological evidence is known to be present and which may be present. The first source of evidence comes from detailed research into the history of Maori, Pakeha and Chinese activity in the valley through oral histories, historic records, such as written histories, diaries and photographs, and an analysis of historic surveyor's maps. My colleague Heather Bauchop will be presenting much of this historic evidence.

25. My own research has considered the possible locations of archaeological sites in the Lower Nevis through a detailed analysis of early survey maps for this section of the valley. It is the preliminary results of this research I will present today.

26. The second source of evidence comes from the actual archaeological fieldwork which has been undertaken in the Lower Nevis valley particularly by Hamel (1994), Middleton (2005) and sites recorded by me.

Archaeological/Historic Evidence as Seen through Surveyor's Maps of the 19th & 20th Centuries

27. In presenting my findings on possible locations of archaeological sites as seen through early surveyor's maps, it must be remembered that the survey maps do not show all of the physical evidence relating to activities happening in the valley during their various surveys and only provide a snap-shot of what the surveyor observed at the time. Surveyors were primarily instructed to record what they believed were relevant to defining legal boundaries of surveyed areas. For example, mining areas shown on the maps most often do not show the lines of water races which fed the mining, the pack tracks leading to and from the mining areas and the miner's hut sites. In addition, extensive ground workings and pastoral features were also not often recorded if they were not considered relevant to the surveyor. When it is considered that in 1869 *ca.* 300 Chinese

occupied the Nevis Valley, the amount of actual recorded mining through the surveyor's pen is minimal.

28. Figure 7 shows a current topographical map of the Lower Nevis. Figure 8 shows a map of the Lower Nevis Valley cropped from the larger *Topographical Map of Part of the Nevis Dist.* survey map drawn by Wilmot in 1881. Wilmot's map clearly shows that by 1881, occupation was well established in the Lower Nevis. From the map we can see the Nevis road and the trig stations which were physically marked around the valley (W, X, Y & Z); buildings, a bridge, and mining located at the Nevis Crossing with a bridge reserve (located where the bridge today is present) being indicated and pack tracks leading up from the Crossing to the Gibbston; gold mining, a dam and huts to the west of the Nevis Crossing; the Schoolhouse and its related buildings on Stewarts (Schoolhouse) Creek and miner's huts to the east of Schoolhouse Creek crossing; the Lower Nevis first cemetery and the Lower Nevis township; a surveyed off Section noted '3'; gold mining and related huts to the North West of the township and the related water races which fed these gold workings coming out of Commissioners Creek; and gold mining being undertaken directly along the true left side of the Nevis River to the east of the township.

29. It can be seen from Figure 8, that a great deal of historic evidence can be derived from a historic map which can then be used to aid in finding the archaeological remains of these historic recordings. Figures 9 to 16 show the layered history of the Lower Nevis through a compilation of surveyor's data (mainly from mining claims) from my research on surveyor's maps from the 19th and early 20th centuries transferred onto Wilmot's 1881 map. Figure 16 demonstrates the integrated nature of the 19th and 20th century history of this isolated valley and shows that the Lower Nevis valley contains a complex array of historic sites layered through time and where the inter-related systems between the miners, pastoralists, store owners, and various goods suppliers worked together to support each other to survive in this isolated valley.

30. The figures also show the possible extent of historic activity and therefore the possible extent of the archaeological record, particularly as historic research shows that many of the mining claims were actually mined, and were not just areas surveyed off for permits by speculators. From this compilation of evidence from the surveyor's maps, it can be seen that the surveyors have not only

captured some of the social networks present, but the physical expression of this network.

Archaeological Field Evidence

31. Not all of the archaeological evidence for the Lower Nevis will be presented here. The recording and mapping which has been undertaken is extensive and can be more readily appreciated by referring to Hamel (1994) and Middleton (2005) and the NZAA Site Record Forms I have provided in Appendix 4.
32. Figure 17 shows the distribution of archaeological sites recorded in the field by Hamel (1994), Middleton (2005) and new sites recently recorded by me (noted as green dots). The distribution of sites is wide ranging and again relate to the various activities of Maori camping and hunting in the valley, and Pakeha and Chinese gold and coal mining, farming, settlements and communications etc. which have occurred in the Lower Nevis since initial Maori occupation in the *ca.* 14th century.
33. Figures 18 is a map from Hamel's (1994) fieldwork report in the Lower Nevis as part of the Tenure Review survey for Ben Nevis and Craigroy Pastoral leases in 1990 and 1994. This map shows some of the main archaeological features of the Lower Nevis and also indicates where Hamel (1994) compiled detailed maps of various archaeological sites (see Figures 5A to 42 in Hamel's (1994) report). Figures 19 to 24 are taken from Hamel's (1994) report and from these the complexity of the archaeological sites she recorded can be seen. Figures 25 to 48 are additional photographs taken of the archaeological landscape during NZHPT fieldwork to the Lower Nevis to illustrate the vast nature of the archaeology present and to supplement Hamel's maps.
34. Figures 19 to 48 show that not only is the archaeology of the known sites themselves complex, but so too is the archaeological landscape of the Lower Nevis. Each site is made up of working systems of water races, gold workings, tracks, accommodation, fuel supplies, pack tracks and communication etc. In turn, as observed and noted with the historic surveyor's maps, these small systems are part of the greater social/cultural network in the valley.

35. In addition to this previously recorded archaeological evidence, I have recently recorded 6 new sites which can be seen in Figures 49 to 56.
36. F42/293 is a gold mining system recorded up Coal Creek on the Craigroy pastoral lease (Figures 49 to 50). This continuous line of gold workings may be early for the valley considering how weathered the sluicings are. The sluicings have their related water race running along the top which originates up a branch of Coal creek and which can be viewed on Google maps. Also associated along the ridge are possible prospecting pits and a water race (F42/294) which appears to continue out along the terrace above the sluicings in the direction of other early sluicings on the true right of the Nevis (Figure 51).
37. Site F42/289 is surveyors Trig Station Y as seen on Wilmot's 1881 (Figure 52). Site F42/290 is possibly an animal yard or garden with walls made of stone and earth and measures 18m by 15m (Figure 53). This site lies near the historic cemetery site F42/169.
38. F42/291 is a massive earth reservoir. It is similar in form and size to other 19th century reservoirs I have recorded around Otago for gold mining. This may be the reservoir noted by Hamel (1994) in her Figure 40 and it appears to be the 'Dam' next to Long Chong's water race recorded in survey map SO 5957 dated 1900 AD (Figures 54 & 55).
39. F42/292 Is a very large sod walled house with chimney (12m X 5m) and associated sod walled yards (22m X 17m) located in the area where the first Nevis township was recorded prior to 1865 (Figure 56). Nearby is another smaller sod-walled hut. Also present on this flat below the associated gold workings are what appear to be crop marks of other buildings which were viewed from a terrace above the gold sluicings. If confirmed as house sites, these buildings too would probably have been associated with the original Nevis township.
40. When the surveyor's historic data for the Lower Nevis shown in Figure 16 is overlain with the recorded archaeological data from Figure 17, the depth of history in this undeveloped expanse is clearly demonstrated (Figure 57).

Critique of Middleton's Archaeological Report for Pioneer Generation.

41. Middleton's (2005) archaeological assessment predominantly revisited Hamel's (1994) previously recorded sites, obtained GPS points for these locations and added further descriptions about these sites. Some new sites were also identified on Ben Nevis and the area of the Dell to the north of the Nevis Crossing. However, I believe the archaeological assessment can not be considered a fair appraisal of the archaeological record present in the Lower Nevis. This is due to fundamental problems in how the archaeological survey was conducted, reported and how the archaeological evidence was evaluated. The main issues with the assessment are:

1. a failure to incorporate detailed research into the history of the Lower Nevis in the assessment as seen through the historic records such as the surveyor's maps, and evaluate this evidence against the physical record in the field;
2. the limitations of the assessment with regard to large tracks of land not considered/surveyed and the exclusion of water races from the assessment;
3. the lack of historic and physical detail on the archaeological sites within the affected area;
4. the evaluation of 'significance' without a defined method of calculating such significance and the use of 'replicated' to determine whether some archaeological/historic sites have values that are also equally represented somewhere else in the Lower Nevis Valley and;
5. the proposition of 'relocating' heritage;
6. the use of 'percentages' to determine the loss of archaeological heritage within the affected area of the proposed hydro scheme as described in her report;
7. a failure to evaluate the Lower Nevis as an archaeological landscape and recognition of the heritage systems which operated in the valley.

Each of these issues is discussed below.

Issue 1

42. Historic records are crucial in determining not only the possible locations of heritage, but also in identifying what part of the archaeological record recognised in the field relates to what persons or events and in what time period and context. Middleton only refers to one historic surveyor's map, SO 808, which provides information on the Kawarau Run 345b and surrounding runs in 1909. Although this map does provide good data on what the surveyor recorded in 1909, a more extensive analysis of early survey maps would have added significantly to the historic background for the Lower Nevis.
43. Middleton (2005:27) proposes that mitigation for the loss of significant archaeological sites in the proposed inundation area of the dam include "*...the recovery of further information about these sites through archival research, aerial photographs and archaeological investigation.*" At the very least archival work and an analysis of aerial photographs should be carried out before any recommendations on site loss are proposed.

Issue 2

44. When considering an archaeological landscape which has the potential to be irreversibly affected by an activity, an archaeological assessment undertaken in this landscape must recognise the limitations of the assessment and ensure any conclusions based on that fieldwork have regard to this. When Hamel's (1994) field report is compared to that of Middleton's, it can be seen that large open areas not covered by Hamel's (1994) fieldwork were also not covered by Middleton's. Large open areas, such as the Schoolhouse Flats, the west terraces and flats of Ben Nevis and the terraces and slopes of Glen Nevis have yet to be surveyed (Figure 17). There is no indication by Middleton the extent or detail to which the survey work was undertaken other than water races were not recorded nor was the old Nevis road. This severely limits the Middleton's ability to make conclusions about the significance or importance of sites when it is unclear if locations of possible sites have been field checked or not. An illustration of what archaeological evidence may still be present is the sites I recently recorded during visits to the Nevis (sites F42/ 289 to 284). The Lower Nevis, therefore, still has not been systematically surveyed for archaeological sites, even though a great deal of evidence has been gathered on this area to date.

45. Another limitation of the Assessment is the choice of not to record water races. Middleton notes (2005:7) *“Water races have not been recorded as archaeological sites, and are not discussed in any detail in this report, although they form a significant, integral component in the archaeology of gold mining (Hamel 2001) and are numerous on both sides of the valley.”* and that *“The races are largely outside the affected area. They form a complex network which requires an independent study”*.
46. Water races were the lifeblood of gold mining and were also used for coal mining in the Lower Nevis and also probably supplied water to the pastoralists and settlements. Without water races, the Lower Nevis simply could not function and historic records show that 87 miles of races had been noted by Drummond in 1866 when he visited the Lower Nevis. This number though would probably not have included the numerous head and tail races left by individual miners. More water races would also have been built after 1866. My visits to the Lower Nevis has observed water races at every level of the valley and not considering them is a major limitation of the assessment.

Issue 3

47. An Archaeological Assessment must provide enough detail to ensure that the non-archaeologist is able to understand the importance or significance of an archaeological site. The archaeological sites located within the 660m contour and so to be affected by the proposed hydro scheme (though this level could be 680m) have not been researched or described in detail enough for judgements to be able to be made on their significance and therefore their potential loss ‘mitigated’. An example is the ruins described as Ritchie’s Homestead (site F42/212). These ruins are only simply described by Middleton (2005:24) with the stonework being described as distinctive in the initial description. Evidence by Bauchop has identified these ruins could have been built as early as the 1860s but a date as yet needs to be established through more thorough investigation. Most importantly, as shown in Figures 58 to 63, I have never seen such a unique style of stone work used so extensively on a gold fields or pastoral site in Otago. Not only is the stonework style unusual, this style is used for all the stonework on the property including in areas of riveting. Middleton’s (2005:26) does note later that she too believes the stonework is unique, but the site is still judged to be ‘replicated’ elsewhere.

48. The vast area of dredge tailings of site F42/209 are extensive and present a moonscape of dips and hollows due to the different periods of dredging which has occurred. These dredgings directly abut 19th century sluice faces and associated tailings presenting a contrasting history stretching from early to late mining on Craigroy. This mining complex should have been discussed and described in more detail.
49. Detailed data collection on sites is required where evaluations are to be made on the significance of sites where there is a potential for considerable loss. Also lacking from the assessment are detailed photographs and updated site plans of the sites recorded, which is particularly important for those which could potentially be lost.

Issue 4

50. Middleton's (2005) assessment not only attempts to evaluate the level of significance of single sites without explaining how this 'level' of significance is calculated or justified, but also uses 'replication' as an approach to determine whether some archaeological/historic sites have values that are also equally represented somewhere else in the Lower Nevis Valley. Significance 'levels' can not be attributed to an archaeological site without a defined methodology, i.e. how does level 1 significance differ from level 3 significance? Defining a 'level' of significance requires justification particularly if sites are treated as single entities and not as part of integrated systems.
51. The term 'replicated' is not used in archaeology to justify loss of heritage or otherwise. Using this term implies all of the social and cultural values which were at play in the creation of the physical archaeological record at one site are present at another. This in turn infers that one site, therefore, is of equivalent heritage value as another and so loss of one can be mitigated by survival of another. Such a methodology is not considered in archaeology as being applicable or valid. This is because the formation of any archaeological site is the result of unique human decisions where the process of its formation is also unique, therefore a site can not be considered 'replicated' in any way as no formation process is the same.

52. In Middleton's assessment, replicated is used to discuss and justify mitigation for the loss of heritage from the proposed dam. None of the sites within the area of inundation are 'replicated' and this notion has no place in any discussion on the heritage of the Lower Nevis or Nevis Valley. It is also important to note that the Ben Nevis and Craigroy homesteads represent the remaining substantial evidence of the history of pastoralism in the Nevis Valley.

Issue 5

53. The method of relocating heritage structures does have a place in heritage management, but only in instances where no other option is available and the suitability of the structure to be able to be moved has been assessed (see Appendix 5: *Sustainable Management of Historic Heritage Guidance Information Sheet 13* from NZHPT). In addition, relocation means the context of the building or structure is lost and as a consequence the building loses heritage value. For Korll's homestead, my opinion from visiting the site is that relocation is not possible, tenable or realistic. The stone as it sits in the structures and in their location are what make this homestead important and it must be remembered that it is not only the buildings that make this site what it is. The unique stonework is used for the other structures around the buildings such as riveting in the nearby stream, and the mortar which binds these buildings and structures is the medium which links the builder to the site, this being illustrated by hand prints I identified in the plaster of the main building. In addition, the associated cultural deposits likely to be present beneath the surface tell the story of who occupied this large 19th century. Relocation of buildings from the homestead certainly should not be proposed as mitigation where a site has not been thoroughly assessed as apparent at Korll's homestead (F42/212).

Issue 6

54. The use of 'percentages' to determine the level of loss of archaeological heritage within the affected area of the proposed hydro scheme is also not an acceptable method of evaluating heritage in archaeology (see Middleton 2005:26). As with replication, this implies that all sites are of equivalent value, be it culturally or physically, and significance. In addition, it also implies that all sites are single entities, isolated from each other in time and space and that they are not inter-related. In assigning percentages it is also inferred that each site occupies the

same physical space where it can be clearly seen that the dredge tailings of site F42/209 occupy a vastly larger area than the Nevis Crossing Hotel site F42/203. Percentage also implies all sites represent all aspects of mining equally. For example, if a valley contains various examples of gold mining techniques, loss of 20% of sites recorded may in reality mean the total loss of one type of mining technology. Using percentages also presumes that all archaeological sites have been located by Hamel (1994) and Middleton (2005) in the Lower Nevis or dam footprint, where in fact Middleton (2005) can only consider known sites.

Issue 7

55. How the archaeological record is interpreted is vital in providing a understanding of the significance of sites within an archaeological landscape and placing these sites in the cultural historic context. Middleton fails to evaluate the Lower Nevis as an archaeological landscape and to recognise the heritage systems which operated in the valley.
56. The interpretation of the archaeological record in the Lower Nevis must be approached in a manner where the past social systems and activities which created the 'sites' are understood to be related through the cultural networks which existed at the time the sites were formed. This means, for example, that all the sites in the Lower Nevis, be it gold and coal mining, water races, historic roads, pack tracks and paths, pastoral buildings and fencelines, township houses, stores and supply depots etc., are all part of past inter-related systems of habitation, resources and communication, each depending on each other at varying times and in varying ways. Every activity left a behavioural mark on this landscape and therefore the 19th and 20th century archaeological/historic sites must not be viewed as separate isolated entities but as a part of a composite organism related in both time and space made up of nodes, networks and spaces.
57. This means that the way 'sites' are recorded and defined is crucial. A 'site' is not a remote feature of past activity but typically part of a system of behaviour on a landscape which the Lower Nevis is a prime example of. Thus a site 'dot' on a map is not an indication of a site's extent, past influence or past interaction.
58. This systems approach has been used and accepted internationally by archaeologists and social scientists for many years and I use it for my work

during Tenure Review survey and reporting for the Crown. In Figures 64 and 65 is an example of how a gold field's site has been recorded as a working system in a valley themselves and where the water races have been the determining factor to how such systems operated. The Systems Approach is also how evaluations are made for historic sites when using DoC's *Significant Inherent Values* guidelines for determining the significance of historic values (Appendix 7a & b). Here the term "Synergy between values" is used to describe:

"Several values which, when taken individually, may not be significant, can have significance when taken together. For example, a set of 1880s goldfields workings on their own may not be significant in terms of these guidelines. They may occur, however, a few hundred metres away from a walking route that has significance. The connection across those few hundred metres would not otherwise be significant on its own but the fact that it leads to the workings is an attribute that may give it significance. The site of the workings is robust and lends itself to high use by the public once the hazards are managed. Because a lot is known about the history of the site, it lends itself well to interpretation in the long term. This type of combination of attributes can have a higher significance than each attribute taken on its own". (DoC Guidance on Significant Inherent Values (SIVs) and Related Matters Under the Tenure Review Programme Crown pastoral lands Act 1998 (CPLA)). In addition, these guidelines explain that "The physical setting of a cultural or historic site deserves protection where it can help us better understand and appreciate things like the challenges faced and overcome by our forebears. A setting that is much like it was in history can help us journey into the past in our imaginations."

The Interpretation of Historic Significance: Tenure Review of Ben Nevis and Craigroy Pastoral Leases

59. I consider that the DoC approach to evaluating and interpreting the significance of archaeological/historic sites is relevant to this application. Particularly as Pioneer Generation are lessees of the Ben Nevis and Craigroy pastoral leases which contain the historic resources which Pioneer Generations proposed dam will affect.

60. Doc has specific guidelines on how pastoral leases should be evaluated as part of the Tenure Review process using an SIV document (Appendix 7a & b). These guidelines are quite specific on how historic values on pastoral leases should be considered so as to provide a balanced view of which areas on a lease are important historically. These are the guidelines I use as part of my Tenure Review historic fieldwork.
61. Dr Jill Hamel undertook the fieldwork for the Ben Nevis and Craigroy pastoral leases and produced her 1994 report based on these findings and although a guideline on SIVs was not available in 1994, Hamel's field experience and knowledge I believe meant that the heritage sites were evaluated in the manner as set out in previous and current SIVs documents. Hamel's (1994) findings were accepted by DoC in 1994 and then used to inform and produced a map of these leases showing the *Significant Inherent Values: Historic* (Figure 66). These figures clearly show the extent of the important historic areas identified by Hamel (1994) and accepted by DoC for the Tenure Review of these leases.
62. However, a very different proposed *Significant Inherent Values: Historic* map for both Ben Nevis and Craigroy Pastoral Leases was released by LINZ in March 2006 (Figure 67). It is unclear why the values for historic resources had changed, however, as DoC had been provided with Middleton's archaeological report since March 2005 by Pioneer Generation Limited, prior to the revised *Significant Inherent Values: Historic* map being released by LINZ (Appendix 8a & b).
63. By comparing Figures 66 and 67 it is clear that a major change in the *Significant Inherent Values: Historic* map has been revised based on Middleton's (2005) Archaeological Assessment and Hamel's (1994) findings have not been incorporated.
64. I believe that Hamel's (1994) historic resources report for Ben Nevis and Craigroy pastoral leases more accurately represent the SIVs for the properties, and it is those that should be considered when assessing the impact of a dam on the Nevis Crossing.

Impact of Damming of the Lower Nevis on the Archaeological Landscape

65. Figure 68 shows Pioneer Generation's proposed dam lake footprint and how this relates to the recorded archaeological sites in the Lower Nevis. It can be seen that both the 660m and 680 contour water level would devastate the known archaeological sites in the Lower Nevis.
66. Figure 69 shows the historic surveyors data and archaeological data for the Lower Nevis combined. When this is overlaid with the proposed lake footprint, the consequences of destruction of the archaeological landscape can be more readily seen (Figure 70). Figure 70 and the data I have presented illustrate that the impact of a dam in the Lower Nevis is not just on archaeological sites present today and fixed in time, but on an expanse of history where evidence on a range of inter-related activities spread over generations will be affected.
67. The archaeological sites which would be lost represent the unique activities of the individual persons who were responsible for these sites. The names of some of these individuals are known, such as Ritchie, Cheshire, McGeorge, Magnus, Steele, Korll, Fache, Flint, McKessey and Horr, whose sites represent dredgings, sluicing, hotels/homesteads and whose activities were confined to where the lake footprint will be. The loss of these sites would represent a loss of these individuals heritage, and therefore entire chapters, from the history of the whole Lower Nevis.
68. Archaeology aims to identify, investigate and understand a culture through the archaeological record and to preserve this record wherever possible. Recording a site as a means to allowing destruction is not accepted in archaeology as a way of managing a country's finite heritage resource. It is only through recognising and valuing the archaeological resource and landscape that judgements may be made on the future management of sites. In the Lower Nevis enough is known currently to be able to conclude that the archaeological landscape is unique, untouched and therefore too valuable to destroy.

Conclusions

- The Lower Nevis is a highly significant and outstanding archaeological landscape of national importance. It contains complex systems of inter-related archaeological sites spanning generations.

- Hamel's 1994 archaeological report for the Lower Nevis more accurately represents the significant archaeological evidence and its values than does the version provided by Middleton 2005, now accepted by DOC and LINZ.
- Hamel's (1994:38) observation that the valley is "*...the most intact goldfields' landscape in Otago...*" is correct. Even so, the Lower Nevis comprises an extensive and complex archaeological landscape which still has yet to be adequately investigated.
- Consideration of all the documents noted in my evidence, in their entirety, is essential for a clear understanding of the significance of the historic heritage of the Lower Nevis. As a whole, the research to date clearly and unequivocally illustrates layers of Maori, Pakeha and Chinese history present in the Lower Nevis.
- The Lower Nevis archaeological and historical record provides an insight to the social systems and networks expressed by the sites recorded to date, the extent of these sites, the strong potential for more archaeological evidence to be discovered in the Lower Nevis and the need to understand the context and setting in which all these archaeological sites lie.
- The Lower Nevis valley, and the significant inherent historic and archaeological values it contains, should not be damaged in any way. Any proposed dam on the Nevis River will significantly compromise the historic heritage of the Lower Nevis.
- Taking an integrated resource approach, the Nevis River is an integral part of the Lower Nevis valley historic and archaeological record. The heritage values are integral to the river. Accordingly, the Nevis River should not be excluded from the Kawarau Water Conservation Order 1997.

References

Briden, S and M. Schmidt 2007. Historic Resources on the Loch Linneh Pastoral lease. Report for the Department of Conservation, Otago Conservancy.

Glen Nevis Pastoral Lease Files P201: Vols. 1 & 2.

Hamel, J. 1994. *The Cold Sequestered Nevis*. Report for the Department of Conservation. Conservation House library, Stuart St., Dunedin.

Hamel, J. 1996. *Power in the Upper Nevis: Historic Sites on Glen Nevis*. Report for the Department of Conservation. Conservation House library, Stuart St., Dunedin.

Hamel, J. 2001. *The Archaeology of Otago*. Department of Conservation, Wellington.

Historic Places Act 1993.

Middleton, A., 2005. *Archaeological Sites in the Lower Nevis Valley*. A report prepared for Pioneer generation Ltd.

Schmidt, M.D. 2007. 'An Assessment to support the Proposal to Gazette 20th Century Gold Mining Sites as Archaeological Sites on the Upper Nevis Remarkables Conservation Area.', Report for NZHPT Board, 2007.