

**BEFORE THE SPECIAL TRIBUNAL**

**No.**

In the matter of

The Resource Management  
Act 1991

And

In the matter of

an application to amend the  
Water Conservation  
(Kawarau) Order 1997 by The  
New Zealand & Otago Fish &  
Game Councils

---

**EVIDENCE OF DAVID GEORGE McKENZIE**

---

**BUDDLE FINDLAY**  
Barristers and Solicitors  
Christchurch

Solicitor Acting: **Kerry Smith**  
Tel 64-3-379 1747 Fax 64-3-379 5659 PO Box 322 DX WP20307 Christchurch

## Introduction

1. My name is **David George McKenzie**. I am based in Christchurch with Opus International Consultants Limited (“Opus”) where I hold the position of Principal, Landscape Architecture; a role that involves the technical oversight of our national Landscape Team. I am also a shareholder in Opus.
2. My qualifications include:
  - Bachelor of Science (Geography) from the University of Otago in 1979, and
  - Post-Graduate Diploma in Landscape Architecture from Lincoln College (now Lincoln University) in 1982.
3. I am a Registered Landscape Architect having practiced as a landscape architect for 27 years. For 25 of these years I have been a corporate member of the New Zealand Institute of Landscape Architects Inc and a Fellow of the Institute. I have a broad range of landscape planning and design experience obtained from project work for territorial authorities, government corporations and private companies such as Otago Regional Council, Central Otago District Council, Gore District Council, Palmerston North City Council, NZ Transport Agency, Telecom NZ, Mighty River Power, King Country Energy and Contact Energy.
4. I am familiar with the likely landscape and visual effects of small hydroelectric developments having assisted Contact Energy with their recent successful application for the Hawea Gates Generation Project where the existing control structure at Lake Hawea will be retro-fitted with two turbines to supply the Upper Clutha area during the winter months. I am also currently assisting King Country Energy progress through the hearing process with its proposed development of a new, small hydro power station on the Mokau River, a short distance downstream of the Wairere Falls hydro scheme, south of Pio Pio in the central North Island.

5. In terms of somewhat larger hydroelectric developments, I am currently assisting Contact Energy prepare three Landscape and Visual Amenity Management Plans for Lake Hawea, the Kawarau Arm of Lake Dunstan and the lower Manuherikia River that are Environment Court imposed consent conditions to Contact's suite of consents to operate the Roxburgh, Clyde and Hawea Dams. I am also assisting Contact Energy in its current application to raise the maximum operating level of Lake Roxburgh by 600mm, where I have described the likely recreational and amenity effects of this proposed change to the potential lake level.
6. In the broader area of electricity generation, last year I assisted Gore District Council in responding to Trust Power's proposed Kaiwera Downs Wind Farm, where consent for constructing approximately 80 100MW wind turbines on the hills to the south of the Clinton-Mataura highway have now been consented. I am also developing a district-wide landscape study for Palmerston North City Council, where the further development of wind farms is a point of contention.
7. Through my input to these various projects, many of which are in Central Otago, I am familiar with the effects of developing energy infrastructure and the supporting and opposing views of the communities in which these developments are located.
8. I am familiar with the landscape of the Nevis Valley having traversed the valley from Garston to Bannockburn a number of times in my youth. I also visited the area as part of physical geography fieldtrips when I was studying at the University of Otago. I have returned to the valley twice in relation to this current application, both times traversing the gorge by helicopter and viewing the flats upstream of Nevis Crossing from the ground. I am also familiar with the small scale hydroelectric schemes that Pioneer Generation operates having in the past visited their schemes at Lake Monowai, Teviot River, Roaring Meg and Wye Creek.
9. I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note and that I agree to comply with it. I confirm that I have considered all of the material facts that I am aware of that might alter or detract from the opinions expressed here.

## Scope of Evidence

10. I have been requested by Pioneer Generation Limited to present landscape evidence in relation to an application by the New Zealand and Otago Fish and Game Councils (“Fish and Game”) to amend the Water Conservation (Kawarau) Order 1997 (‘the WCO’).
11. The WCO protects the Kawarau River together with a number of tributaries including the Nevis River. All of these waters are within the Clutha River catchment. The WCO was confirmed in 1997. It protects the wild and scenic characteristics of the Kawarau and Nevis Rivers but does not prohibit damming of the Nevis River.

## Discussion on Fish and Game application

12. There are no specific project parameters that have been developed by Pioneer Generation for any hydroelectric development of the Nevis Valley. Therefore any potential landscape and visual effects of a future development can only be based on generalities. Instead of focusing on such potential effects, I will concentrate on addressing Fish and Game’s more specific concerns relative to the current application, and in particular the perceived wild and scenic nature of the Nevis Valley.
13. By its supplementary letter to the Minister on 4 May 2007 Fish and Game’s application seeks to amend the WCO to recognise the whole of the Nevis River as having outstanding wild and scenic characteristics.
14. I have reviewed the landscape study by Mr Petrie<sup>1</sup> that supports Fish and Game’s application and consider that it gives a thorough description and discussion of the landscape of the Nevis Valley and addresses perceptions of ‘wild and scenic’. Mr Petrie’s landscape study concludes with a discussion on the potential effects of a small hydro power scheme on the landscape. The only reference in regard to such power schemes quoted in his landscape study is a general planning guideline<sup>2</sup>. In 2006, Pioneer Generation had only progressed some tentative ideas on what might constitute a hydro

---

<sup>1</sup> *Landscape and Amenity Values Assessment Nevis Valley, Central Otago*; prepared for the Clutha Fisheries Trust by Alan Petrie, FNZILA, May 2006

<sup>2</sup> *Planning Guidelines for Small Hydro Schemes*; Energy Efficiency and Conservation Authority, 1996

power scheme in the Nevis River, if such where ever to be developed.

15. What is unknown or yet to be defined, are the actual components of any small hydro power scheme, including their location and extent, that Pioneer Generation might propose in the Nevis. It is only when these factors are fully investigated and more clearly defined, that a more realistic assessment can be made of the potential landscape and visual effects of any proposed hydro development. That kind of information would come in association with a resource consent application for such a proposal should Pioneer Generation chose to proceed with an application.
16. The components of any potential scheme are likely to be defined during both consultation by Pioneer Generation prior to it lodging an application, and through submissions on such an application once notified.
17. With that qualification I can make some general observations about this landscape, acknowledging that in making the order in 1997 a decision was made that aspects of the Kawarau catchment are worthy of protection, and other aspects are to be preserved. In other words those judgments have already been made in many respects about this catchment. My observations of the Nevis River and valley lead me to conclude that there has been little or no change since the 1997 order was made. I discuss that opinion below.

### **Discussion on Nevis landscape**

18. Mr Petrie's landscape study describes the landscape of the Nevis Valley from the Kawarau River confluence to Trig Y<sup>3</sup>; that is, the downstream 16km of the total 48km length, approximately, of the Nevis River. His description breaks the lower valley down into landscape units that are primarily based on landform. He describes five landscape units downstream of Nevis Crossing that are all based on having a gorge-type landform. The sixth landscape unit is an upland basin.

---

<sup>3</sup> Trig Y is a location adjacent to the Schoolhouse Creek ford on the Nevis Road and is in the middle of the Nevis basin.

19. Mr Petrie then describes and rates various qualitative landscape attributes for each landscape unit, being; naturalness, legibility, coherence and aesthetic/scenic factors. For all six units he considers these attributes to rate moderately high to high, except in his landscape units 1 and 5 where he rates naturalness as moderate and in landscape unit 3 where he rates legibility as moderate. Relative to the brief description Mr Petrie gives for each of the attributes within each unit, I concur with the ratings he has defined.
20. Note is made in the landscape study of varying degrees of modification within the study length of the valley. He assesses modification as being noticeable in the lower gorge due to "*the legacy of early pastoral farming methods*" and now the infestation of woody weed species. This modification becomes less pronounced upstream through the gorge as the topography becomes more rugged and the density of native vegetation such as mixed shrublands increases.

### **My observations**

21. It is my observation that in the area of the Nevis Burn, the influence of current pastoral farming becomes obvious and this modifying factor continues upstream beyond Trig Y.
22. As the local landform opens out at the Nevis Burn and more so upstream of Nevis Crossing, a broad range of landform features associated with the Nevis basin become obvious. They range from the open riverflats, to various levels of terraces, the main valley slopes incised by various side valleys such as Schoolhouse Creek, and the tops of the ranges to the east and the west such as the Old Woman Range and the Hector Mountains.
23. In my opinion these expressions of landform are the dominant landscape attributes in the Nevis basin. Past and current human activity has modified the basin and had a strong influence on the landcover of the basin and on the landform of the riverflats and terraces. This is a direct expression of the past and current land uses of the basin – alluvial mining and pastoral farming. The sequence and extent of this modification to the landscape of the

basin is described in detail in Dr Angela Middleton's evidence on the archaeological and heritage aspects of the basin.

24. After the containing landform of the local ranges, it is its history of human modification that defines the basin. From my observation, and in my opinion, this combination of a distinctive landform containing evidence of past and current activities of mining and farming is quite common to various parts of Central Otago. What makes the Nevis basin particular is its isolation from the rest of Central Otago and this is more so for the Nevis Gorge downstream of Nevis Crossing and the upper Nevis Valley south of Trig Y and Schoolhouse Flat. The extent of this isolation is evident in the location map at my attachment - **McKenzie 1** - and in the photographs I will come to shortly.

#### **Discussion on 'wild and scenic'**

25. There are two sections of the river that are the subject of the WCO; one is the lower section of the river to its confluence with the Kawarau River, the other is the upper section to its source. Nevis Crossing is the demarcation between the two. The WCO currently defines the lower section as 'wild' and the upper section as 'scenic'. Fish and Game's amended application seeks, among other things, the classification of both sections of the river; that is the whole length of the river, as both 'wild and scenic'.
26. Going back to Mr Petrie's landscape study, in the conclusion he notes:

*"When describing the river's special qualities there are a number of distinct differences between its upper section (Upper Nevis and Lower Nevis) which conveys a sense of openness, spaciousness and where there is an impression of discovering these "out backs" via the Nevis Road. The lower section (gorge) possesses a feeling of enclosure, intimacy and mystery with the river disappearing out of sight at Nevis Crossing. The "crossing" has localised identity owing to the inter relationship between natural and cultural elements."*

27. I agree with the thrust of Mr Petrie's assessment. In my opinion the whole length of the river can be considered scenic, but 'wild and scenic' do not necessarily 'travel together'. Due to the degree of modification in the Nevis basin (that which Mr Petrie refers to as the Lower Nevis), it is not possible to consider the upper section of the Nevis Valley as 'wild'.
28. Mr Petrie refers (in his section 4 and the conclusion of his landscape study) to "*the authoritative survey undertaken by Paul Mosley in 1989 regarding the perception of river scenery in New Zealand*"<sup>4</sup>. Mr Petrie's summation of the findings of the Mosley survey study are that there appears to be a strong correlation between scenic and wild attributes.
29. Mr Petrie acknowledges Mosley's survey was based on scenic perception and was intended to assess the attractiveness of a riverscape. He also states that there is a strong correlation between wild and scenic, implying that if it is scenic it must also be wild. From my reading of the Mosley study, I can understand how in interpreting Mosley's findings, Mr Petrie correlates that "scenic" follows "wild". The South Island examples that imply this connection from the Mosley study are the Clinton River in Fiordland National Park and the upper Waimakariri River in Arthur's Pass National Park; rivers defined by Mosley as "*wildness or scenic rivers, with high scenic characteristics*".
30. However, there are another set of rivers referred to by Mosley that also scored highly in his survey for having scenic characteristics. They were what Mosley defined as "*urban or rural rivers*". The South Island examples of these in the survey included the Avon River where it flows through the Christchurch Botanic Gardens and the Opouri River, northeast of Nelson, which is described as "*tree-lined in pastoral setting*". While quite obviously "scenic" in nature, neither of these rivers would be considered as "wild". In my opinion, which I consider is supported by the Mosley study, "wild" does not necessarily follow "scenic".

---

<sup>4</sup> *Perceptions of New Zealand River Scenery*, MP Mosley, Water Resources Survey, DSIR; from *New Zealand Geographer*, 45, 1, 1989, 2-13

31. In considering what is “wild”, there appears to be no specific definition for this term relative to the WCO legislation. From my experience and observation, there appears to a continuum where “wild” would sit at one end and its opposite “tame” would be at the other end. Between “tame” and “wild”, there appears to be degrees of cultivation or modification that ranges from the likes of Mosley’s “urban or rural rivers” through to “*wildness or scenic rivers*”. A similar analogy would be Department of Conservation’s use of the terms “Front Country” and “Back Country”, though these describers would start at about the midpoint of the continuum I am suggesting, and tend towards the “wild” end. There is obviously a fair degree of subjectivity to just where specific landscape and rivers ‘sit’ on such a continuum, with this subjectivity being based on the individual’s experience, expectations, understanding and knowledge of the range of landscapes that exist. For instance, someone who has spent all their life in an urban area such as Auckland will have a different perception of what is “wild” compared to someone who is from Queenstown.
32. Relating this back to the Nevis basin, the section of the Nevis River that flows through the basin would be more akin to what Mosley calls a ‘rural’ river, in that there are scattered willows along the riverbank, a road bridge at Nevis Crossing and farm buildings and developed pasture in close proximity on both riverbanks. On the continuum I have mentioned, the Nevis basin and the Nevis River in this area are not “wild” as they show the distinct influence of human modification.
33. In Mr Petrie’s landscape study, he refers in section 4 to the Department of Conservation’s submission on Outstanding Landscape areas to the Otago Central District Proposed Plan (undated) which states “*the valley possessed the inherent traits that are instantly recognizable within Central Otago’s distinctive and unique range and basin landscape type.*”
34. The authoritative text on the physical geography of the area is “Landforms of New Zealand”. Its chapter on basins and lowlands of the South Island classes the Nevis Valley as a range and basin

landscape type. That is not strictly true<sup>5</sup>, but the valley does in part, have a form that mirrors this landscape type. What I consider the Department of Conservation submission recognised is the significance of the local landform; the two sets of ranges to the east – namely the Carrick and Old Woman Ranges that lead into the Garvie Mountains to the south - and to the west - The Horn Range, as well as The Remarkables that lead into the Hector Mountains to the south - and the long, linear valley enclosed by these two sets of ranges. The Nevis River as the central feature and the obvious water body within the valley makes a significant contribution to the scenic nature of this landscape. It is the dynamic element that ‘draws the eye’ and always will be whether it is seen as white-water rapid, meandering stream between still pools or a shimmering lake.

### **PGL indicative options**

35. Mr Mulvihill has described Pioneer Generation’s indicative options for potential hydro development that ‘fits in’ with the current WCO i.e. the ‘run-of-river’ option and the ‘storage’ option. In describing these tentative options, their type, form and components are purely indicative.

### **The ‘Run-of-the-River’ Option**

36. Mr Mulvihill has discussed the potential hydro generation options that might be proposed by Pioneer. As the name suggests, the run of river option would utilise part of the natural flow of the Nevis River and would not have storage. This option is similar to a number of PGL’s other small hydro schemes such as Roaring Meg where individual schemes are operated relative to available water.
37. The components of this option would most likely include an intake dam and associated small lake, a headrace tunnel, penstocks, and a powerhouse. The map at **McKenzie 2** and subsequent visualisations provide an indication of the location and extent of these components. There would also be associated components

---

<sup>5</sup> *Landforms of New Zealand*, edited by JM Soons and MJ Selby, Longman Paul, 1982. Refer to Chapter 18 *Basins and Lowlands of the South Island*, BB Fitzharris, GD Mansergh and JM Soons. At Figure 18.1, the intermontane basins of Otago progressing from the east are noted as Maniototo, Ida, Manuherikia, Cromwell and Arrowsmith. These large scale features are considered to be the ‘basins’ of the broad Central Otago ‘Basin and Range’ landform; not lesser features such as Ardgour Valley, Nevis Valley, Cardrona Valley and the like.

such as an access track to the intake dam, a spoil deposition area resulting from the excavation of the headrace tunnel, an overhead transmission line connecting the powerhouse to the electrical grid and access tracks to service the penstocks, powerhouse and transmission lines. The integration of these components with their surrounding landscape would be the subject of any future resource consent process.

38. As the information used to generate the visualisations is preliminary and indicative, the illustrative detail of access tracks, transmission lines and the like has not been developed at this stage. Such information would be defined if and when a power scheme proposal was progressed to the resource consent application phase. Providing this further level of detail now based on the current initial investigations would be speculative and potentially misleading.
39. The purpose of an intake dam is to hold and divert water into an intake structure that feeds the tailrace and ultimately the turbines in the powerhouse. It is my understanding that the intake structure has to be totally submerged so that air cannot enter the tailrace and the rest of the system. Therefore it is necessary to have an intake dam and a lake as opposed to a simple weir in the river diverting a side flow to the intake structure. However the intake dam would most likely be a weir-like structure, being a roller-compacted (“RCC”) concrete dam that has a stepped or terraced downstream face, over which flood waters can flow. The RCC-type of dam is common in modern, small hydro power schemes such as PGL’s Horseshoe Bend Dam on the Teviot River. This type of dam does not require a separate slipway for high or flood flows, which helps limit the extent and effect of the dam on its surroundings.
40. The visualisation labelled **McKenzie 3** provides an impression of what such an intake dam and associated holding lake might look like. This dam is shown on the Nevis River at a point approximately 800m downstream of the confluence with the Nevis Burn. This is an indicative location only. It would potentially inundate approximately 1.2km of the Nevis River channel and the lower reaches of the Nevis Burn and the parallel stream immediately to the north. The relative level of the holding lake is 640m.

41. As the holding lake is only likely to extend a short distance up the Nevis Burn and a short distance up the gorge towards Nevis Crossing, it will not be visible from Nevis Road, when descending into the valley from Bannockburn. The prominent plateau that closes off the north end of the valley immediately north of Nevis Crossing will also obscure the holding lake from the Nevis Road when travelling north down the valley. Following an existing farm track over the "saddle" aspect of this plateau immediately northwest of Nevis Crossing leads into the lower reaches of the Nevis Burn. The visualisation labelled **McKenzie 4** provides an impression of the extent to which the downstream end of the Nevis Burn might be inundated by the holding lake. The lower left visualisation at attachment **McKenzie 5** provides an impression of what might be the overall extent of this intake or holding lake.
42. The tailrace tunnel could potentially traverse 6.0-6.5km downstream under the west-facing slopes of the lower Nevis before emerging in the mid slope of a steep side valley that is approximately 4.5km upstream of the confluence of the Nevis with the Kawarau River. It has not been defined but it is likely the spoil excavated from the tailrace tunnel would be deposited in close proximity to the intake structure and the downstream end of the tunnel. The spoil deposition area or areas would need to be placed, contoured and revegetated so that they fit in with the surrounding landform.
43. The tailrace tunnel would emerge in the local valley slope at a point approximately 320m above the river and descend as a penstock or penstocks to the powerhouse. The powerhouse would most likely be a simple building on the true right bank of the river and would only need to be big enough to accommodate two turbines and auxiliary equipment. The visualisation labelled **McKenzie 6** provides an indication of the relative location and extent of the penstock and the powerhouse.
44. From the switchyard, power lines would traverse east towards Slapjack Saddle and the existing Transpower Cromwell – Frankton 110kv transmission line, or connect to the local Aurora power lines either via the Gibbston Valley to the Frankton substation or via Roaring Meg to the Cromwell substation. It is anticipated that the

electricity feed circuit from the Nevis powerhouse would be a large single pole or H pole line (two timber poles and a crossbar with three conductor lines); the same as the higher voltage Aurora's power lines. Alternatively, the connection to the Transpower 110kv transmission line would require a number of lattice towers. It is likely that vehicle access for construction and maintenance of the penstocks and powerhouse would be from Bannockburn via Long Gully and Slapjack Saddle as much of this route already provides access to the Transpower 110kv line. The remainder of the existing 4WD vehicle track from Slapjack Saddle to the powerhouse area appears to have been recently upgraded by gold miners who were operating a hydraulic digger and screening unit in the lower Nevis. As with any potential power line route, Pioneer Generation is yet to consider what could be the actual route of the vehicle track and to negotiate access agreements with the property owners.

45. The small, steep valley in which the penstock and the powerhouse might be located is not visible from any common public viewpoint. The only aspect of the lower reaches of the Nevis River that is visible to the public, other than by those individuals that gain access and tramp into the lower Nevis itself, is the short section of the river immediately upstream of the confluence with the Kawarau River. This particular view can be glimpsed by the occupants of higher vehicles such as SUVs and buses, if they look south from State Highway 6 over the briar on the north terrace of the Kawarau.
46. Patrons of the AJ Hackett Nevis Bungy have a direct view of the downstream extent of the Nevis Gorge and the confluences with Doolans Creek, Slapjack Creek and the Kawarau River, along with an immediate view of Transpower's Cromwell - Frankton 110kv transmission line, and a clear view of SH6 and the regional landfill. The possible site of the powerhouse is approximately 3.5km upstream on the Nevis and not visible from the jump site.

### **The 'Storage' Option**

47. The addition of the storage component to the 'run-of-the-river' proposal would change the way the power scheme is managed and operated. It would give PGL the opportunity to run the scheme at

high capacity for a greater period of time without being dependent on relative immediate rainfall and snowmelt to maintain capacity.

48. Running the power scheme for winter demand, in turn, would have an effect on operating lake levels and the look of the landscape within the Nevis basin. The lake would be held in a full state during the summer and into the autumn, which is likely to correspond to the time when there are most visitors to the upper valley. During the winter the lake would be drawn down and remain low, unless there are unseasonal periods of rainfall or snowmelt. This would correspond to when visitor numbers are likely to be low. At times the valley is totally inaccessible. During the early spring the lake would rapidly refill with snow melt.
49. The 'storage' option would comprise all of the components described for the 'run-of-the-river' option, plus a storage dam and its associated impoundment lake. **McKenzie 2** has an indication of the location and extent of these additional components. There would also be further associated components such as an access track to the storage dam and the relocation of the section of the Nevis Road inundated by the storage lake.
50. Like the intake dam, the storage dam would most likely be a RCC dam, which would be located in a section of gorge downstream from the Nevis Crossing Bridge. As indicated on the map at **McKenzie 2**, this dam would create a storage lake that, when filled to a relative level of 663m, would be approximately 4 km long and 1km at its widest. This lake would inundate the Nevis Crossing Bridge and a section of the Nevis Road, the Craigroy and Ben Nevis homesteads, the adjoining low terraces and the river flats, and the gold works (both old and more recent) on the river flats.
51. The following visualisations indicate the likely extent of the storage lake:
  - (a) **McKenzie 7** is from an informal viewpoint just of the Nevis Road on the descent from Duffers Saddle that provides a broad overview of the Nevis basin.

- (b) **McKenzie 8** is from Nevis Road from where there is a more direct view of the Nevis Crossing area.
  - (c) **McKenzie 9** is an aerial view looking downstream over the Nevis Crossing gorge area.
  - (d) **McKenzie 10** is from the plateau looking south down the length of the Nevis basin.
  - (e) **McKenzie 11** is from the Nevis Road between the Ben Nevis homestead and Schoolhouse Flat looking across the river flats.
52. If the 'storage' dam option were to be implemented, it is anticipated that the Nevis Road would be realigned to circumnavigate the storage lake to the north and west with the storage dam being designed and built in such a way that it would also be the 'bridge' over the Nevis River.

### **Potential Effects of a Hydro Power Scheme**

53. If PGL were to develop a small hydro power scheme on the Nevis River, aspects of the river and its adjoining landscape would change. The 'run-of-the-river' option described above would affect parts of the lower river only, whereas the 'storage' option would affect parts of the upper and lower sections of the river.
54. Within the lower section the introduction of a holding lake and a powerhouse and controlling the flow of the river would have an affect. The lower river gorge would still be wild, though less so in part. However, the majority of the gorge would be unaffected. The lower river is in many ways an 'invisible' section of the river as it is accessible only to the fit and the keen. This isolation, in my opinion, defines its 'wildness' in itself and being 'wild' is not necessarily just due to an almost continuous flow of unconstrained white water.
55. Within the upper section, the introduction of the storage lake would bring about a change to the immediate landscape of the Nevis basin. The upper river would still be scenic but it would be a different scene to that which is currently viewed. An isolated and enclosed landscape modified by farming and mining would be further modified in part by a lake replacing a large portion of the riverflats within the

basin. The isolation and enclosure would remain, as would many aspects of mining and farming, but the meandering thread of water that flows from the south would be replaced in the downstream end of the basin by a broad body of still water.

### **Conclusion**

56. The landscape of the Nevis Valley is dominated by its landform and derives its scenic nature from that landform, including the natural processes that have altered the landform over geological time to how its landcover, and to a lesser extent, aspects of the landform have been managed and modified by human intervention.
57. In considering the effects of human intervention the landscape of the valley has remained unchanged since extensive alluvial mining ceased in the valley and has certainly not changed to any extent since the WCO was gazetted in 1997.
58. Its climate and its isolation are distinctive elements that define the landscape of the valley. The Nevis River is the dynamic or changing feature of the valley and it is its action over time that has formed the valley. However, it is but a part of the landscape. The isolation, climate, and the context of the landscape (located between the ranges to the east and west) will not change if PGL constructs the kind of hydro power scheme described above.

**D G McKenzie**

**6 May 2009**