Riverstone
HOLDINGS LIMITED

30 September 2010

Department of Conservation Southland Conservancy
c/o Chris Visser
P O Box 123
Stewart Island 9848

Dear Chris

Thank you for the opportunity to meet with yourself and Martin Kessick. It was invaluable to us to have the discussion that took place and to thereby afford us a late stage opportunity to review our Revised Concession Application before we ask the Department to proceed.

We consider our Application to be very robust. It is the product of many years of consideration since the monorail was first proposed. Along the way substantial modifications to the route (such as avoiding Dunton Swamp altogether) and to construction methodology (creation of service track) have been introduced. These changes have invariably followed consultations with stakeholders and meetings with DOC and its advisors.

There may remain elements of our Application that require further explanation before the Department can make a Determination. If this proves to be necessary we will be in a position to respond, however, we consider that we have arrived at a point (subject only to the further contents of this letter and its attachments where some significant additional modifications are contained) where we are asking the Department to proceed with the Application as it now exists.

Our Application can be summarised as follows:

1) We have proposed an engineering approach which your advisors have since formally described as credible. We have also addressed the issue of a staged approach. We have always seen this Application as involving a staged approach and this is discussed elsewhere and highlighted with a Flow Chart that emphasises the staging. What we cannot accept are the commercial and financial risks in the particular staging model proposed by your advisor MWH.

2) We propose a 200 metre wide easement for the 29 kilometres of journey that is across your estate (with the exception of the 300 metre wide stretch described in the application). This provides the basis for what we both describe as the envelope approach.

3) Following our meeting in July we determined that there continued to be concerns held by DOC over some terrestrial ecology issues. We have since modified our proposal to create and include a Forest Management Plan and a Predator and Weed Control Management Plan. The elevation of both these areas of concern to discrete Management Plan status together with a robust expansion of our commitments within each and the submission of draft concession conditions for each reflects our intention to satisfy the provisions of Part 3B of the Conservation Act 1987 and in particular, the relevant provisions of Section 17 and the Department's "Guide to Preparing your Environmental Impact Assessment for Concessions Applications".

4) With the addition of the new plans and their contents we consider we have now provided DOC with a sufficient overall assessment of effects that are known and acceptable. Where issues of avoidance, remediation or mitigation arise, we propose the Management Plan approach. These plans are intended to be comprehensive in the areas to be covered and the detail to which they extend. Additionally, they will allow DOC to actively manage the Applicant's activities 24/7, year by year and in each of the pre-construction, construction and operations phases. The standard of these plans will be according to international best practice.

5) We consider the Application process is ideally suited to potential concessionaires committing to detailed Management Plans. We expect any Concession Agreement entered into with the Department would specifically recognise the various ensuing construction and operational phases and would contractually require Riverstone to submit detailed Management Plans to be approved on every relevant matter before construction or operations could commence. By ultimately designing the Concession Agreement and the provisions within it to incorporate each Management Plan we consider the Department is able, without risk, to defer asking the Applicant to provide a speculative level of detail now that is best addressed later with greater certainty.

6) Our proposal for DOC to appoint a Project Advisor reporting to DOC but funded by the Applicant will allow DOC to access relevant external project skills and experience for the pre-construction and earlier construction periods with the then subsequent ability for those skills through training and mentoring to be capable of transfer to DOC personnel.

Response from DOC External Advisors

We do not propose to go through each issue raised by your Advisors, in this letter. At our Invercargill meeting there was a useful discussion on this and the items that you indicated required a further response from us. Please find attached a report which addresses those matters. We are grateful to have the working notes dated 18 August to assist us in doing this.

Applicant's proposal on various issues raised at Invercargill meeting of 26 July and/or contained in working notes of 18 August.

We intend to continue to pursue the envelope approach and where "any assessment of effects" issue arises we will demonstrate that the effects are known and acceptable. We do not accept the view stated by some of your auditors that we have not yet provided sufficient information to understand the effects anticipated by the construction and operation of the monorail and associated activities to a level required to meet the Conservation Act thresholds. We have sought legal advice on this matter and we have made that advice available to you.

Where it is not pragmatic or appropriate to explicitly describe and assess effects at a detailed level now, we consider the Management Plan approach which in principle identifies the ecological/environmental criteria to be met and then enforces the protection of those values is the optimal strategy. We believe that this approach will result in a lesser level of adverse effects, such as removal of significant trees, than would occur by prematurely drawing a "line on a map" to demarcate the route which we and DOC would be required to stick with, regardless of on the ground realities.

<u>Additional Management Plans - New</u>

As mentioned in Paragraph (3) of the Summary above we have (in addition to responding to the advice of your external advisors by way of a separate report attached) now proposed two additional Management Plans that are designed to give greater prominence and focus to issues raised by you and your terrestrial ecology advisers. Additionally, we have attached Draft Concession Conditions for each along with Draft Concession Conditions for all other activities we propose.

Forest Management Plan (FMP)

Given the Department's desire for a more prescribed description now of matters such as edge effect, likely wood volumes to be removed and the ultimate fate of cleared vegetation, we have described the proposed principles we will be accountable against and the management actions we will implement to avoid and remedy any potentially adverse effects.

Further, in time as with any Management Plan there can be updating to allow for improved knowledge, particularly when design and construction methodologies are finalised and particularly upon completion of the "walk through" with DOC personnel.

Predator and Weed Control Management Plan (PWCMP)

We remain committed to the view that the best mitigation we can provide is to the bat population in the Eglington Valley, being the largest and most well studied population in the South Island. We consider our mitigation proposed will provide the greatest overall benefit to bats. Nevertheless we have modified our approach and will now in addition place greater emphasis than we previously indicated on predator control along the monorail route. We have arrived at that view for two reasons:

1) We recognise our obligation as the easement holder to the landowner (DOC) and to our neighbours and adjacent landowners in the Mararoa, Whitestone and Upukerora Valleys, and

2) The conservation ranking for bats has been revised since we lodged our application and long-tailed bats have a higher ranking than previously. While this reinforces our view that improvement of existing habitat in the Eglington Valley is the most critical contribution we can make, our modified approach also leaves flexibility to address what we may encounter along the route and to then design a relevant predator control plan for the area in which we may encounter "endangered species" presence. With the advent of new technologies to better control mammalian predators it is appropriate to design a Management Plan with the flexibility to adopt these technologies now and in the future to address any "endangered species" populations issues encountered along the route.

   We would also wish to emphasise the expertise we have engaged within and through Mitchell Partners to assist and advise us on both Management Plans. Our advisors are highly regarded by DOC in other conservancies for their specialist knowledge and experience.

This letter (and the information attached) has been written in a manner that:

1. Proposes to bring the Riverstone Application to a conclusion.

2. Sets out the basis of our approach – credible engineering, a suitably staged process, an envelope approach to the land over which we seek an easement, a Management Plan approach enshrined in the concession contract to provide certainty of performance and of the basis of the monitoring of that performance for both parties and for the public.

3. Provides sufficient commitment to a precise route definition in the areas of greatest sensitivity together with additional discrete Management Plans on key outstanding issues to satisfy the Minister as to the sufficiency and adequacy of information concerning effects.

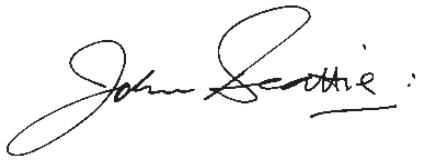
4. Sets out the advice from legal counsel on the nature and quality of the information we have now provided.

5. Demonstrates the Applicant's commitment to operating according to standards of international best practice.

6. Acknowledges the enormous amount of research and advice tendered by the Applicant and its advisors, and by the Department and its advisors both internal and external to this project over a lengthy period of time. This Application has involved a genuine and cautious iterative and consultative process. Many changes to route and methodologies have been considered and made where appropriate.

It remains to thank the Department for the manner in which the Applicant has been able to pursue its Application and to remind all involved that what the Applicant has always wished to achieve is the highest quality tourism experience which will provide an opportunity for local and international visitors (and now mountain bikers) to experience landscapes and ecosystems that they would not normally encounter. We would not be meeting our goal if those landscapes and ecosystems suffered adverse effects. We consider that this Application more than meets that goal through the contributions made by everyone and the process that has been followed this far.

Yours sincerely,



John Beattie

Riverstone Holdings Limited

Fiordland Link Experience

Response to Department of Conservation Audit Reports

September 2010

mitchell partnerships

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LIST OF ATTACHMENTS:

1. INTRODUCTION

Thank you for the opportunity to review the technical audits that have been prepared for the Department of Conservation (DoC, the Department) in response to Riverstone Holdings Limited's (RHL) application to seek an easement to construct and operate a monorail and mountain bike track in Fiordland. The purpose of this report is to provide you with clarification or feedback from RHL as to the conclusions and recommendations contained within the technical audits. RHL's specialist advisors have considered the matters raised in the audits and a coordinated legal, planning and technical response is included here.

It should be noted that some reports were not audited, namely the Moriarty report which assessed tourism benefits. In general terms, the audits focused on potential adverse effects of the proposal, and to date, we have not been provided with any assessment or stated view of the Department of Conservation as to the significant benefits of the FiordlandLink Experience project. In summary, these are:

- Increased tourism opportunity for Fiordland;
- The reduction in time taken to travel to and from Fiordland, and reduction of congestion along Milford Road and at Milford during the middle of the day;
- To enable those who would not normally have the opportunity to visit and experience such a place, in a controlled manner;
- The use of a portion of every ticket sold to invest in predator control in the Eglinton Valley;
- Education of passengers along the route of the ecological and recreational values of the area;
- The provision of a mountain bike track, which will link Queenstown, Te Anau Downs, Te Anau and Lake Manapouri; and
- The creation of substantial employment during the construction phase, and ongoing employment through the operation phase through development of associated services.

This report has been structured to initially review the progress of the proposal so far, and then address the overarching themes that have been raised in the audit, followed by a more specific discussion regarding the assessment of effects that has been undertaken and the mitigation proposed. Further detail regarding the mountain bike trail is also provided.

2. HISTORY OF THE PROJECT

The monorail proposal is unique in the world. Most monorails are urban constructs designed to transport people short distances. Nowhere else has a monorail been constructed with the constraints, particularly ecological and engineering constraints, which are encountered with this proposal.

The current application supersedes an application for a concession for a similar proposal sought by RHL in 2006. In early 2008 RHL requested that Mitchell Partnerships peer review the 2006 concession application. Our review

highlighted a number of deficiencies in the 2006 concession application and it was determined that a revised application was required. Substantial work was required with respect to engineering design, construction activities and environmental effects. RHL has not undertaken the preparation of this revised application lightly. The 2009 concession application has been well considered and is the result of more than fifteen years of planning and investigation.

Prior to the lodgement of the 2006 application the approximate route was comprehensively investigated and refined in 1995 (by Bill Lee and Graeme Elliott then of Landcare Research), 2004 and 2006 (by Boffa Miskell). During this iterative knowledge gathering process the route was modified where necessary to protect the recognised ecological and other values along the route as increased knowledge came to hand. The 2006 application was reviewed by technical auditors who raised significant issues, particularly with respect to construction methods and the effects on terrestrial ecology, but also other effects including those on landscape and recreation values.

As a result of the 2006 audit it was decided to completely revise the concession application and the route was further modified to protect the local ecology. Between receiving the audit results in 2007 and lodging the revised application in 2009, a substantially new team of experts was assembled and the route was again refined and then comprehensively surveyed by each member of the team. Each of the new team members was provided with the earlier material and the earlier technical audit. As a result the team were aware of what had gone before and any limitations of those earlier investigations. Thus the current application was developed as a response to the 2006 audit and designed to address any perceived shortcomings with the added advantage of ten years of prior planning and consideration (refer **Table 1**).

As part of the revision process the following field work was undertaken:

- Mitchell Partnerships Ltd undertook two surveys of the entire monorail route and surrounds including the proposed cycle link track to Te Anau Downs (one in May 2009 and the second in late November 2009). The surveys of the route took approximately five weeks and comprehensively documented the ecological values present along the route.
- Opus International Consultants spent approximately two weeks walking the entire route and considering the approach to construction and specific design details.
- Stephen Brown walked approximately 24 km of the route and flew over the entire route twice. He also undertook field work in the wider area.
- In May 2009 NIWA staff undertook field surveys in rivers and streams along the proposed monorail route, the surveys involved extensive time in the water.
- Rob Greenaway walked the route and in addition explored alternative locations for the Kiwi Burn hut.
- Marshall Day Acoustics flew into several of the remote parts of the route by helicopter and measured ambient noise levels, as well as flying over the whole route.

As well as this substantial field component, all the experts undertook desktop investigations. Other desktop components included in the revised application included:

- J & H Moriarty undertook an assessment of the effects of the project on tourism in the vicinity and in the wider area, including Milford.
- Traffic Design Group prepared a traffic impact assessment report relating to traffic and transportation matters arising from the proposal.
- New terminal buildings were designed by Salmond Architecture Ltd, who also visited the terminal sites and considered the form and function of other buildings in the vicinity as well as the surrounding landscape.

As a result of the refinement process, a construction track was added to the proposal. It was originally intended to rehabilitate this track, but upon further consideration and consultation with the Department it was decided to leave the construction track *in situ* for use as a mountain bike route. This was seen as consistent with the Department of Conservation's mandate to manage natural and historic heritage assets for the greatest benefit and enjoyment of all New Zealanders by advocating and promoting natural heritage.

Table 1: Summary of Project History

AREA OF EXPERTISE	2006 AUDIT FINDINGS	2009 REVISED RESPONSE
Engineering & Construction	Lack of certainty over the route options.	The route envelope has been defined.
	Lack of detail and prescription around construction methodology.	The construction methodology has been prescribed.
	Engineering constraints not adequately assessed.	The engineering constraints are clearly identified and discussed.
	Insufficient site work to determine all the issues that may apply.	Extensive site work has been completed.
Terrestrial Ecology	More comprehensive fauna surveys required.	Two additional bird surveys completed. Forty three species of bird confirmed present (11 threatened). Bat survey completed. Long-tailed bats confirmed present. Green skink (*Oligosoma chloronoton*) confirmed as present nearby.
	Need to consider context of Te Wahipounamu World Heritage Area.	Covered (Section 2.3 of October 2009 report).
	Assessment of the local, regional and national significance of the vegetation and habitats at the site	Covered (Section 6 of October 2009 report).
	Insufficient information to determine how many canopy trees will be felled and in which locations.	Approximately 10, 859 trees and 14, 439 saplings will be removed, making no allowance for further refinement of the route to protect large trees (Section 3.2 of January 2010 report).
	No description given of approach to minimise ecological impacts. No ecological criteria for selecting the final alignment.	Ecological criteria are proposed (Section 8 of October 2009 report). Management plan approach described.
	No consideration of vegetation disposal.	Forest Management Plan developed.
	Scale of effects not quantified.	21.96ha of vegetation removal and other effects considered in both reports.
	No mitigation proposed.	Predator and Weed Control Management Plan developed. Both on site and 200ha of ecosystem management proposed for Eglinton Valley.
	No strategy for rehabilitation.	Rehabilitation an integral part of Construction Management and

		Operation Environment Management Plans.
	No weed and pest monitoring or control proposed.	Predator and Weed Control Management Plan developed. Both on site and off site predator control proposed, with focus on protection of threatened species. Weed control and monitoring proposed.
Landscape	Not sufficiently detailed in its identification and examination of different character areas along the concession route.	Stephen Brown divided the route into different character areas and considered the route both as a whole and within the Fiordland context.
	Addressed both the proposal and effects in a lightweight manner.	Stephen Brown gave the proposal and effects due consideration.
	Lack of collaboration between engineering team and landscape team.	Team approach taken.
	Statutory assessment RMA focussed, needs to be set in context of Conservation Act.	DoC advisors have placed inappropriate focus on RMA, the application is set in the context of Conservation Act.
	Amenity values focussed on visual values, does not address other amenity values.	Considered.
	Lack of construction detail precludes consideration of construction effects on landscape.	Considered.
Recreation	Assessment focussed on impacts along corridor, does not consider values in wider area.	Further field work undertaken and assessment revised in accordance with audit findings.
	Does not address public values associated with existing recreation infrastructure.	Considers public values of existing situation.
	No alternative location nominated for Kiwi Burn Hut.	Alternative location nominated.
	Safety concerns with respect to public access during construction and operation.	Considered.
	Potential to increase visitation rate.	Considered.
	Monorail will change visitor setting and visitor profile to the area.	Considered and recommendations made.

Freshwater Ecology	Lack of information – limited to fish.	Other taxonomic groups (invertebrates, periphyton) and water quality considered.
	Characteristics of streams and waterways not detailed.	Main streams and waterways described.
	Lack of information with respect to construction near waterways.	Construction near waterways outlined. More detail to form part of management plan.
	Lack of collaboration with engineering team.	Team approach taken.
Noise	Effects of construction noise not considered.	Considered.
	Consideration of noise on recreational users.	Considered.
Architecture	Siting of buildings, not design is the main focus.	Design of buildings to fit in landscape the main focus. Precise location of buildings still under consideration.
Tourism	No tourism assessment undertaken.	Tourism assessment completed by J&H Moriarty.

3. OVERARCHING THEMES

There has been a common theme to some of the criticisms that has emerged in the technical audit reports. In our review of the audit reports we identify these as including:

- Envelope approach;
- Management of Effects and Mitigation;
- Provision of Additional Information;
- Research Methodologies.

These themes are applicable to all the assessments that have been undertaken by RHL. Our response to these common themes is outlined below.

3.1 ENVELOPE APPROACH

A number of auditors have identified a potential risk with respect to the width of the concession easement corridor or "envelope" and the variable effects that may occur within that corridor. Some auditors suggest that this approach does not provide sufficient certainty that avoidance of important habitats will occur, and does not allow the adverse effects of the proposal to be accurately quantified.

As described in the concession application a 200m wide corridor is proposed for most of the length of the route. The proposed corridor has not been set arbitrarily. Rather it is the result of detailed environmental and technical investigations, including the assessments that have been commissioned by RHL between 1995 and 2010 and a significant amount of ground truthing by the entire technical expert team. This approach puts the environment first, and allows the final access, layout and position of the route to be subject to further survey and the design to be adapted according to geotechnical foundation or environmental conditions encountered. This approach enables RHL to accommodate significant ecological, landscape, geotechnical and other environmental values during construction and operation of the monorail and mountain bike trail without the considerable upfront cost of providing substantial further information at this early stage.

Adopting an envelope approach at this early stage in the process means that the experts engaged by RHL have had to adopt a precautionary approach. Each expert has effectively assumed a worst case scenario in terms of an effects assessment within the corridor.

It is noted that each audit report effectively assessed the technical appendix to the application relevant to each main field of expertise. Whilst this was an appropriate approach, and no doubt will be useful to the Department in its overall assessment of the application, it has resulted in some of the audits not recognising the "bigger picture" matters which were addressed in the body of the application itself.

To guide construction and operation of the monorail and mountain bike track a series of management plans will be prepared to manage the effects of the construction and operation of the monorail. This is now considered accepted practice for projects of this nature. The management plans are used to guide the way that a development occurs at the outset, and are coupled with comprehensive monitoring requirements and subsequent and ongoing adaptive management response as necessary. RHL proposes five management plans:

- A draft communications protocol;
- A construction management plan;
- An operations and environmental management plan.
- A forest management plan; and
- A predator and weed control management plan.

The first three of these were attached to the concession application in draft form and will be populated and refined as the project moves from its conceptual phases through to design and construction. Because of the unique nature of the monorail proposal the selection of a final monorail provider will significantly influence these plans.

The Forest Management Plan is proposed to specifically address matters such as criteria for large tree avoidance (both during the route selection process and during construction), development of methodologies for vegetation removal and disposal (either within the site area or total removal), and monitoring. The Predator and Weed Control Management Plan sets out specific predator control works both on site and in the Eglinton Valley and also addresses weed control both during and post construction. The draft Forest Management Plan and draft Predator and Weed Control Management Plan are attached to this report as **Attachment 1** and **Attachment 2** respectively.

It is envisaged that an Independent Project Advisor, funded by RHL who reports to DoC and coordinates the response of DoC staff will oversee the population and implementation of these protocols and management plans.

RHL considers that the envelope approach and the use of management plans are appropriate to the circumstances and comprise an effective management tool in dealing with potential and actual effects of this proposal. Having said that, we acknowledge that you have advised you require further certainty that the footprint, construction effects and vegetation removal will in reality be consistent with the level that is proposed in the application. Prior to any construction it is proposed that RHL will engage with DoC to determine and agree on the final monorail alignment and mountain bike route. This will include a "walk through" and other field investigations. The Independent Project Advisor (on behalf of DoC) will be involved throughout the entire route determination process.

We refer to a letter prepared by Paul Beverley of Buddle Findlay which you have received (dated 28 September 2010). This relates to concession conditions and the use of management plans in other cases relating to the Conservation Act and the Resource Management Act. We note that the

Minister and Department have significant control over the nature of conditions imposed on any concession. It should be noted that the Minister could at any later stage in the process (such as following a hearing) decline the application on the basis of any concerns over the information provided.

3.2 MANAGEMENT OF EFFECTS AND MITIGATION

3.2.1 Effects

As described above, RHL has not adopted a fixed route, or confirmed design matters at Kiwi Burn or Te Anau Downs at this stage in the process. This is not uncommon in a project of this scale and significance. Design development will follow the concession and resource consent approval phase. RHL proposes to factor in some flexibility in its management of terrestrial ecology, aquatic ecology, construction effects and sediment management so that it can more easily incorporate knowledge acquired via further research and monitoring investigations.

As discussed in the concession application, management plans set out the processes to be applied in order to achieve a certain environmental outcome during each stage of the construction or operation process. RHL considers that while the outcome can to a large extent be agreed at an early stage, the exact methods of achieving that outcome will be subject to refinement as the project progresses. RHL will continue to develop these management plans, with significant contribution from DoC. It is envisaged that the contents, preparation and submission of any management plans will form part of the conditions of any concession.

The management plans require ongoing input and verification with DoC throughout the various phases of the construction and operation of the monorail and mountain bike trail. This will be managed through the communication protocol between RHL and DoC.

RHL is of the view that DoC can be confident that prior to construction of the monorail and mountain bike trail, any residual questions about the effects arising from construction will be answered and DoC will have confidence that an appropriate range of mitigation or offsetting options are available to address any actual effects. The proposed management plans and communication protocol will ensure this outcome. Absolute compliance with such plans and protocols can be achieved through conditions attached to the concession.

3.2.2 Mitigation

The auditors have expressed concern that the residual effects of the monorail cannot be determined and therefore the suitability of mitigation cannot be fully assessed. It seems that some of the auditors may prefer a more prescribed approach to the development by allowing the proposal to proceed in a series of stages. RHL would be required to submit design and construction methodologies for stages prior to the concession being granted.

RHL and its legal advisors do not see merit either environmentally or commercially in implementing the project on a staged basis. In our view the management plan approach is the reasonable and appropriate one in the circumstances. It is unrealistic to suggest that the way the ecosystem will respond to the construction and presence of the monorail can be predicted with 100% certainty. There is a need to monitor closely and respond to effects if they occur. In some cases, effects may not manifest for a number of years if at all, and mitigation should be tailored to meet actual as opposed to theoretical effects. Furthermore ecosystem management is evolving and what is considered appropriate today could be superseded with the passage of time.

The information already gathered in terms of the environmental effects, in addition to the investigations that will be necessary prior to construction, and the monitoring that will be carried out in conjunction with construction, will ensure that any potential effects will be known and can be adequately mitigated or avoided.

We do not consider that a staged approach will achieve any greater certainty of effects in this regard, nor is it likely to lead to improved mitigation. A staged approach does however lead to greater commercial uncertainty for RHL.

To demonstrate how the management plans will be developed and implemented with certainty for the entirety of the project, we have expanded the draft conditions of Concession submitted with the application. The level of detail included will ensure DoC remains in control throughout the design and construction phase of the project (refer **Attachment 3**).

The structure of the proposed draft conditions and interrelationship with management plans is outlined in the flow chart (refer **Attachment 3**).

3.3 PROVISION OF ADDITIONAL INFORMATION

The exact specifications for the monorail are not yet known. The proposed route is not like any other in the world. The particular constraints for the design and type of monorail are unique (remote location, topography, ecological values). A key component of the design phase will be to work closely with a monorail supplier immediately following the necessary construction approvals being obtained. Deferring the design development will also enable RHL to take into account any future improvements or developments in construction methodologies or technologies and incorporate up to the minute construction and safety standards.

As discussed, we acknowledge that many of the auditors would prefer more detail with respect to various aspects of the proposal in order for them to have confidence in the level of effect concluded in the application. This is particularly true for the engineers and terrestrial ecologists. Their approach, in general terms, seems to have been that in the absence of more detail they have concluded that effects may well be much greater than anticipated in the application.

The recommendations in some of the auditor's reports essentially require RHL to undertake the next phase of work: design development. Given a project of this size and cost, it is premature and inappropriate to require the design development to be undertaken at the outset before any concession or consents to complete the work are granted. Such work will be undertaken if and when concession and resource consent approvals have been secured and RHL decides on the basis of commercial and other information to proceed to the next development phase.

There will always be a continuum of information that could be provided at any particular stage in a process such as this. It is our view that we have provided sufficient information to enable the Department to undertake their assessment faithfully.

We refer to the opinion prepared by Paul Beverley of Buddle Findlay, which has already been provided to DoC. This considers the information to be provided with a concession application under the Conservation Act 1987 and advises that the size and scale of the EIA should be in proportion with the size and scale of the activity and its potential effects and notes that the Minister has a **discretion** to decline an application if s/he considers that the information available is insufficient or inadequate, but this is not a **requirement** of the Minister under the Act.

On the basis of the advice received from its experts, including Buddle Findlay, RHL is of the opinion that the further information can be obtained to refine and manage effects through the design process which will by then be governed by the conditions of the concession.

Further information regarding the mountain bike trail is discussed later in this report.

3.4 RESEARCH METHODOLOGIES

In a number of the audit reports there is the suggestion that the research methods adopted by RHL's team of experts are not sufficiently accurate, or could have lead to biased data collection. We consider this assumption to be unfair and incorrect. The methodologies employed by the experts engaged by RHL are not unique, and are considered best practice methodologies that have been tried, tested and peer reviewed elsewhere throughout New Zealand and internationally.

3.4.1 The Team

All of the experts engaged by RHL are highly experienced and have documented expertise in dealing with large scale projects in particularly sensitive environments. They rely on best practice and industry standard methodologies to assess the level of environmental effects and use this to determine balanced and objective conclusions.

Each expert engaged by RHL has a high ethical standard and a reputation to uphold. In accordance with the Code of Conduct for expert witnesses each expert has based their assessment on fact; they have not strayed from their specific areas of expertise and have sought additional expert input where this was required to assist in the assessment. Each has adopted a robust quality assurance system for review purposes. You can be confident that the technical reports prepared on behalf of RHL are comprehensive and have been prepared in an impartial and objective framework.

To address the deficiencies in the 2006 application RHL embarked on an extensive search to engage experts who are leaders in their respective fields. RHL has invested considerable time and expense in employing these experts to investigate possible effects and recommend methods to address any potential or actual effects that may occur as a result of this proposal. They have also had the benefit of peer review from the audit of the first concession application. The issues with this proposal are complex and RHL has taken the best possible expert advice on the likely effects and management of those effects. That advice includes the need for close monitoring and flexibility in response depending on the precise nature and significance of any effects.

RHL has not adopted a one size fits all approach to the effects assessment. Instead RHL has engaged a team of expert consultants with specific expertise to assess the proposal. For example the terrestrial ecology team consisted of Dr Gary Bramley, whose expertise is in wildlife survey and predator management; Dr Ruth Bartlett, an expert in botanical survey and preparation of related assessments of environmental effects; Dr Sibilla Girardet, whose expertise is kiwi management, preparation of management plans and habitat restoration; and Mr Rhys Buckingham who is the leading expert in New Zealand with respect to survey for bats, birds and snails. In addition, in preparing the various terrestrial, forest and predator control management plans and the terrestrial ecology reports the team has consulted with Dr Colin O'Donnell (DoC Christchurch), Brian Rance (DoC Invercargill), Dr Rhys Gardner (Auckland Museum), Ines Schonberger (Landcare Research), Graham Jones (Transit New Zealand), Anne Karen (Downer EDI), Dr Robyn Simcock (Landcare Research), Peter Wilson (Retired kaka biologist), Dr Ron Moorhouse (DoC Christchurch), Dr Peter Dilks (DoC Christchurch), Dr Peter Bellingham (Landcare Research), Dr Rob Allen (Landcare Research), Alan Griffiths (Ministry of Agriculture and Forestry), John Robinson (Harvest Manager for JNL forestry) and Dr John Wardle (Retired beech forest ecologist).

The aquatic ecology team from NIWA consisted of Mr Marty Bonnett, an expert in freshwater fisheries; Ms Cathy Kilroy, an expert in periphyton; Dr Alastair Suren, an expert on invertebrate communities in freshwater; and Ms Janine Wech an expert on freshwater ecology. NIWA is New Zealand's foremost Crown Research Institute with respect to aquatic biodiversity and climate science and the team were able to draw on that institutional knowledge as necessary.

The value that has been added to the assessments because of the combined knowledge of the experts and the collaborative approach should not be underestimated.

3.4.2 Criticism by the Auditors

The audit by Morgan+Pollard apparently seeks to undermine the credibility of Stephen Brown Environment Ltd's landscape assessment by questioning whether the report has been produced to an appropriate professional standard. The auditor raises a number of areas of concern including the lack of a table of contents, that the executive summary does not match the report structure and that the presentation of images is akin to a promotional brochure. These matters appear relatively petty and do not in any way affect the validity of the assessment. Stephen Brown is a highly experienced landscape architect who has undertaken a large number of visual and landscape impact assessments, at a project level (of all scales), and strategic assessments undertaken at a district or region wide level, throughout the country. He has been on the Board of Directors of the Environmental Defence Society for the past nine years.

The audit by Morgan+Pollard suggests that the route has not been walked by Stephen Brown. In reality, all but two relatively short segments of the whole corridor have been walked. The two 'missing segments' are over part of the Kiwiburn saddle and over a short part of the saddle from the Whitestone Plateau to the Upukerora River: these amount to approximately 5.5kms out of the 29.5kms assessed. These two sections were viewed from above during low level helicopter flights twice and were discussed with the ecological and engineering teams: both of whom indicated that they differed little from the landscapes assessed on the ground at both ends of these segments (in terms of terrain, vegetation cover, canopy density and height). This, together with the isolated location of both segments, suggested that little would be gained from travelling through them on foot. The implication that the study was solely desk and aerial based is simply not true and fails to reflect the photos clearly taken along the concession route.

At paragraph 4.1.1.1 of the Terrestrial Ecology Audit Report the author suggests that the vegetation assessment was based on the subjective placement of survey plots. The audit report suggests that this could lead to biased interpretation of the plot data. RHL's ecological team have used standard industry best practice methodologies and can confirm that the vegetation survey plots were selected a *priori* to be every 300m. There is no bias as a result of the selection of these survey plots as is inferred by the audit report.

The Terrestrial Ecology Audit Report includes a section (section 5) on the spring survey undertaken by Mitchell Partnerships. The purpose of this survey was to build on the original assessment and the second survey of the route was critical in confirming methodologies and findings of the earlier work, particularly with respect to the fauna and the density and volume of trees present. It appears the spring survey has been considered very much in isolation from the original assessment and little or no regard has been given in the Audit Report to

the value the spring survey added to the overall terrestrial ecology assessment. It is our view this has resulted in an emphasis on the botanical aspects of the terrestrial ecology by the auditors at the expense of the threatened fauna along the route. The focus of the spring survey was largely on the fauna present along the route, and the survey was timed accordingly. This lack of consideration of the faunal aspects has resulted in an overemphasis on the vegetation at the expense of the wider terrestrial ecology issues.

3.4.3 Work Completed

All of the experts engaged by RHL are familiar with the route and most have walked the entire length. This has not been overlooked by experts as a necessary tool in their assessment.

Key experts in terrestrial ecology, aquatic ecology and landscape have spent an extensive amount of time surveying the area using both aerial views and on site assessments.

Stephen Brown's landscape assessment covered all areas of appreciable landscape variation in the field work. As the photos included in the report clearly suggest, Mr Brown walked all areas where appreciable variation in the landscape occurs.

All river and stream crossing points associated with the proposal were traversed in the course of the field work and aquatic ecology assessment. Any implication or assumption that this work has not occurred is simply incorrect.

4. SPECIFIC MATTERS – ASSESSMENT OF EFFECTS

In this section of the report we address the more specific issues that have been raised in the DoC audit reports and summarised in your working notes dated 18 August 2010. As mentioned above RHL's experts have contributed to the formulation of this response.

In our view it is considered that the potential and actual environmental effects arising from this project have been appropriately identified and quantified to the extent currently possible.

With careful management during construction and operation of the monorail and associated activities many of these effects can be suitably mitigated or avoided. In a few isolated circumstances where adverse effects will occur, RHL is proposing a significant compensation or programme of offsetting. This is deemed an appropriate management response to ensure the net effects of this project are positive.

While we have commented on the individual audit reports, it is important to keep in mind that each of the reports audited individual technical appendices to the application, and none addressed the application as a whole. This was their role and brief, but it is our view that upon review of the way the individual technical

reports have been drawn together in the application itself, the real value in the process proposed becomes evident. We consider that it is DoC's role now to take the findings of the reports and then look at them in the context of the application as a whole.

4.1 ENGINEERING AND CONSTRUCTION - MWH

The Engineering and Construction audit report concludes that from an engineering perspective the proposal is credible. The report notes however that further information is required in order to determine the effects of the proposed activity on the Conservation Estate. To address this concern the report recommends the following actions:

- Seek preliminary design standards for the alignment of the monorail track and associated activities, including LiDAR of part of the route to confirm construction and extent of effects within test areas;
- Seek independent advice from someone experienced in monorail design and operation and risks of operation of a monorail in a wilderness environment; and
- Seek a lower and upper bound earthworks footprint and tree clearance corridor.

As mentioned above these recommendations require the developed design to occur now, which as outlined above is considered unreasonable. The developed design would be completed once the necessary approvals have been obtained. This detailed work would be used in the formulation and implementation of the management plans before construction proceeds. DoC would be a key participant in this design phase and would have opportunity to influence design parameters to protect significant conservation values where necessary.

Design work is intended to target both typical sections of alignment in typical terrain types as well as the more challenging sections of the route such as Kiwi Burn Saddle and the Bluff Slip in the Upukerora. At these sites sufficient detailed investigation and analysis, including geotech, LiDAR and three dimensional imaging will be used to produce a developed design and quantify the works required in these specific areas. This would enable an upper bound and general treatment situation to be defined and demonstrated based on data and specific engineering design. Completion of this work phase would enable quantification and presentation of monorail visibility through the canopy, accurate estimates of the cut and fill required, delineation of the construction footprint and quantification of the precise extent of tree clearance and edge effects. During this phase, further design standards and guidelines would be developed as constraints and monorail design parameters are quantified.

MWH's audit raises specific matters of concern or areas where further clarification is required relating to the width of the construction track, the management of sewage at the Kiwi Burn terminus and Te Anau Downs terminus, management of solid waste and traffic.

The conceptual design and construction methodology for the monorail and access track has been developed by Opus Engineers and Noel Brand, general manager of HEB Construction. This approach has been validated by the ecology team and has resulted in the proposed clearance envelope for the monorail and 3m wide construction access track.

The MWH audit suggests that the land area required for the sewage treatment and disposal at Kiwi Burn and Te Anau Downs could be significant given the constraints at both locations. Conceptual design indicates that there is sufficient space available for an appropriate treatment and disposal system at both localities. This matter is likely to be a regional council concern and resource consent would likely be required for these activities. Any adverse effects would be mitigated through the appropriate design and conditions to that consent.

The MWH audit report raises a number of concerns with respect to the storage and disposal of hazardous substances. This matter would be comprehensively addressed in the management plans. The draft construction management plan requires the development of emergency response procedures for hazardous waste and these would be developed within the plan. The contractors engaged would be briefed regarding the appropriate use and management of hazardous substances and spill kits and other equipment would be available where necessary.

The MWH audit considers that the draft construction management plan provides no guidance on the management of excess cleanfill and the guidance around the disposal of vegetation material is conflicting. Opus responds that all foundation excavations will be backfilled with compacted excavated cleanfill material. There will be a slight surplus due to the volume of precast foundation but this would be managed by localised re-shaping around each pier.

Vegetation will be disposed of as outlined in the proposed Draft Forest Management Plan. This Plan sets out in detail the construction and operating procedures to minimise canopy clearance as far as is practicable. It also proposes monitoring to ensure the goals are achieved and contingency plans to be enacted if they are not. DoC would be an active participant in the preparation, revision and implementation of this plan.

The MWH audit report notes that provision and size of any car parking facilities has not been confirmed in the application. The report states that growth in the number of mountain bike users may result in there being a higher number of road users and increased pressure on the Kiwi Burn facilities. The report recommends that such effects should be considered.

It is our view that the cycle track proposal needs to be considered in relation to the entire Three Lakes ride. Kiwi Burn is unlikely to be a significant start or end point for people using this track because of its remoteness.

The MWH audit report concludes that because knowledge about the environment and future potential risks will develop with further investigations and the design and construction will evolve in response to this knowledge, the

better understanding of effects, and the input of monorail expertise, any concession process should be staged so as to adequately manage the concession.

In our view the most effective way of controlling the evolution of this project is to agree on an appropriate management response via the management plan process, which the Department would have input to and control via the concession conditions. In our view input would be via review and comment on the communications protocols and management plans as well as the appointment of an Independent Project Advisor. As described above, it is envisaged that this advisor would be appointed by DoC, funded by RHL and would be involved in the developed design, population of the management plans, construction and operation of the monorail. The role of the person would be to engage with both DoC and RHL representatives to ensure the development progresses in line with the terms of the concession granted and any management plans required.

To reiterate it is our view that a staged approach will not provide any greater certainty to DoC as to the level of effects and mitigation necessary, and certainly a staged approach will create significant commercial risk as to the viability of this project for RHL.

4.2 TERRESTRIAL ECOLOGY – WILDLAND CONSULTANTS LIMITED

The Terrestrial Ecology audit generally supports RHL's assessment of indigenous ecological values and that the most important indigenous values have been identified. However concern was expressed that the Terrestrial Ecology report had underestimated the importance of large red beech trees. The audit considers that the avoidance of adverse effects on these trees is of critical importance.

Mitchell Partnerships agrees with the assessment that red beech forest is significant in this area. Their report ranked red beech forest as being significant. The ecological criteria proposed by Mitchell Partnerships for selecting the final route seek to protect red beech trees where possible. We note that five of the nine proposed criteria (criteria ii, iii, v, vi and ix) with respect to the monorail route specifically mention red beech or canopy cover and seek to avoid their removal. Furthermore we note that the audit report describes the proposed ecological criteria as being 'reasonably sound'. The mapping of these trees and other significant ecological features would be undertaken as part of the design phase and used to determine the final alignment within the proposed 200m corridor. This alignment definition would be governed by the process outlined in the Forest Management Plan (refer **Attachment 1** for draft plan) and would inform the subsequent management of the vegetation clearance. DoC are expected to have input into any revision of this plan, and also the implementation of it, including at such time as monitoring indicates that key triggers have been activated requiring further forest protection.

The audit expresses concern regarding potential edge effects resulting from removal of the canopy. Our ecologist notes that in this situation, potential edge effects are somewhat mitigated by the fact that the route is positioned close to the forest edge along most of the route and that the presence of deer, has substantially modified the naturally existing forest edge. Accordingly the amount of any edge effect will depend to a large extent on the amount of canopy clearance that occurs at a particular site: where the canopy is removed completely, edge effects will be larger. In areas where the canopy is not broken or completely removed (initial survey indicates approximately 80% of the route) edge effects are likely to be small, often less than 1m and certainly less than 2m. The ecological criterion ix) requires as much of the canopy cover to be retained as possible. This will be enacted via the definition of the final alignment and implementation of the Forest Management Plan (refer **Attachment 1** for the draft plan).

There is a suggestion in the audit report that the potential edge effects and removal of indigenous vegetation and habitat has not been adequately mitigated particularly with respect to potential effects on red beech habitat. The audit report suggests that pest control of at least 500 ha along the monorail route would be the best onsite offset for the effects of the project.

RHL's ecologists note that if pest control were implemented over 500 ha in the vicinity of the monorail, it would require approximately 29.5km of traps or bait stations over an area approximately 170m wide. A ribbon of pest control 170m wide would contain at most four traps or bait stations across it. This would not maintain low pest densities along any of the route because of reinvasion and would likely never result in a measurable decline in pests.

Due to the matters raised in the Wildlands report, and MPL's advise as to the feasibility of onsite predator control, it is now proposed that in instances where acutely threatened species (bats, birds, or plants) or significant habitats are discovered prior to construction, the concession holder is required to reach agreement with the Department of Conservation as to the type and quantum of mitigation to be provided to protect the species concerned. The mitigation will be specific to the species or habitat identified and the quantum will be consistent with the level of any effects and once decided will be described in this plan. A specific Predator and Weed Control Management Plan is attached as **Attachment 2** which sets out a methodology for this proposed approach.

In addition, RHL's experts have responded that whilst they recognise that habitat loss is an ongoing threat to indigenous communities, most of the red beech trees in the immediate vicinity of the route are already within the conservation estate and little more can be done to protect them without active management. With respect to the ecological value that large red beech trees have as habitat for fauna, the degradation of that habitat by introduced pests, including possums and predators, is more significant than loss of red beech habitat *per se*. For that reason they have recommended the management of existing habitat to improve its productivity as mitigation for removal of red beech. This is encapsulated in the ecosystem approach which recommended 200 ha of pest control in the Eglinton Valley to offset effects on red beech

species and other indigenous habitat and species. The rationale for recommending 200 ha of pest control is as follows:

- An ecosystem approach, rather than a single species approach, is promoted and is likely to have better conservation outcomes for the variety of species potentially affected by the proposal. The predator control envisaged requires multispecies control, including possums which endanger yellow mistletoe, rats which are seed predators, and mustelids which are carnivores.
- Deer are difficult to control to the very low numbers required to protect native plants. The abundance of deer along the monorail route makes deer removal prohibitive and without this control other pest control would be less effective in the vicinity of the monorail.
- In order to maximise the effectiveness of predator removal an approximately circular shaped area is best. In terms of cost effectiveness and conservation value, long thin areas are less effective.
- In terms of servicing the traps or bait stations the approximately circular layout as proposed minimises doubling back or other delays to the contractors and is more likely to be successfully maintained and cheaper to operate.
- An area of 200 ha is appropriate. An area of 500 – 1000 ha of pest control for the removal of 27 ha of forest and grassland is out of proportion with the project's effects.
- Conservation of most species requires large areas. The easiest way to achieve a large area, and thereby achieve real conservation benefits, is to add value to an existing project. The Eglinton Valley is located nearby, parts of it are within the same Ecological District and Region as portions of the route, and mobile species such as kaka and bats may move between both areas. The headwaters of Boyd Creek and Retford Stream (both in the Eglinton Valley) form part of Snowdon Forest and Boyd Creek was recommended as a priority area for protection in the only prior ecological survey of Snowdon Forest that has been found. Discussion with Dr Colin O'Donnell (DoC Christchurch) also indicated a resident bat colony was found there.
- Eglinton Valley has a history of research which can be utilised to inform management direction and decisions.
- Eglinton Valley includes similar habitat to most of the monorail route and habitats similar to those present along the route could be protected.
- Modelling has shown that predation and other factors are expected to drive populations of long tailed bats in the Eglinton Valley toward extinction within 50 years, despite the level of management they currently receive.

Overall the populations present at the Boyd Creek site have the potential to be highly responsive to effective predator control to the extent we have proposed. It is a very appropriate area in which to carry out long term conservation management to ensure biodiversity values are maintained and losses from the project are sufficiently offset. The methodology for this proposed approach is detailed in the Predator and Weed Control Management Plan (refer **Attachment 2).**

The audit raises concerns with respect to the disturbance to tussock grassland and potential weed invasion. This potential effect is directly related to how quickly direct transfer of tussock vegetation can occur to rehabilitate exposed soils so as to avoid leaving gaps open for colonisation of weeds. Our ecologists are confident that with careful management this potential effect can be effectively mitigated. The management plans will set out the procedures, methods and monitoring that will be required to ensure that quick and successful transfer occurs. We note the experience of our ecological team with respect to rehabilitation of ecologically valuable sites, including former coal mines, and their involvement in preparation of extremely comprehensive management plans for the proposed Cypress Mine.

The auditor notes that the terrestrial ecology assessment identified native turf species in the mown areas of Fiordland National Park Lodge lawn at Te Anau Downs, but that they have not yet been evaluated. The methodology with respect to these areas would be the same as the rest of the route. The species have been identified, and therefore will be avoided where possible as part of the final design of the terminus buildings and monorail structures. As noted in the audit, landscaping will include such species where possible so as to ensure no net loss.

4.3 LANDSCAPE – MORGAN+POLLARD ASSOCIATES

The Landscape audit has identified a number of perceived deficiencies and concerns with respect to the landscape assessment that has been undertaken by Stephen Brown Environments Ltd.

The audit also identifies a number of "information gaps" and expresses concern with respect to the width of the proposed corridor, engineering issues, and matters relating to vegetation and ecology. With respect, we are of the view that these aspects of the audit report step outside the author's area of expertise and are not valid in the consideration of landscape and visual effects arising from this proposal.

The audit identifies a number of information gaps that are however relevant to the landscape assessment. These are addressed below.

There is criticism that the landscape assessment has failed to consider the earlier Boffa Miskell assessment for the monorail. It is important to note that that report was criticised for not being sufficiently detailed in its identification and examination of different character areas along the concession route and for addressing both the proposal and effects in a lightweight manner (see Table 1). However, the monorail proposal was still in gestation when the Boffa Miskell landscape report was prepared and the route has since changed significantly – especially near the Upukerora River / Scarp. In our view it would have been confusing to start comparing the results of two different reports in relation to what are, in effect, two different proposals approached in two different ways and the nature of any comparison would simply dilute the key messages contained in the current landscape assessment.

The audit is concerned that there has been a failure to address the requirement of the Resource Management Act (RMA) in the landscape assessment. The audit report is also critical of a perceived failure to assess the landscape values against the modified Pigeon Bay criteria. We consider it important to note that this proposal is for a concession application under the Conservation Act. The RMA is not the relevant legislation to apply to this proposal, as determined by the auditors of the 2006 concession application. We note further that section 6(b) of the RMA is not the appropriate test to apply when considering an application for a concession application. RHL will make any necessary applications under the RMA at a later date.

The route, apart from the termini, was identified in the landscape assessment as lying within an Outstanding Natural Landscape for reasons including (and beyond) the modified Pigeon Bay criteria. Each character area identified along the route of the concession corridor was not assessed in terms of these criteria simply because there was no need to do so once this determination had been reached.

The audit report states that the landscape assessment is light on detail regarding rehabilitation, the mountain bike trail and terminus proposals. The key rehabilitation for this project is focussed around rehabilitation of the forest habitat and ecology. These matters are comprehensively addressed in the ecological report and not repeated in the landscape assessment. The two reports are intended to be read together. Furthermore, much of the rehabilitation detail described, together with other details such as the cycle trail, emerged after completion of the draft landscape report and have yet to be incorporated within it. Details in relation to both terminus sites were still being resolved at the time of the report's completion, but primarily affect areas of disturbed tussock, coarse pasture grasses and weeds surrounded by farmland near Kiwiburn / Mavora and open lawn at Te Anau Downs, not the higher quality landscapes addressed within the rest of the concession route.

The audit also infers that there has been a failure to recognise key audiences, including hunters and trampers. The landscape assessment is intended to be read in conjunction with the recreational report which addresses effects on these user groups.

The audit states that there is lack of detail about scenic vistas and views from the monorail. The landscape assessment is primarily concerned about the effects that the monorail would generate for those looking in and on the margins of the forest – not looking out from within the carriages. Views out appear likely to be limited, for the most part, to the immediate forest. Even so, in sections 5.1, 5.2 and 6 of the landscape assessment the intimate nature of such exposure is described and compared with the much more expansive and quite different nature of views obtained elsewhere, such as when travelling to Milford Sound. It is very difficult to accurately portray "*how the forest would appear when travelling at 70 km/hr though it"* without having the benefit of a comparable experience – other than in a general way. Furthermore, the anticipated speed suggested by the auditor appears excessive.

The audit criticises the field work that has been undertaken in the formulation of the landscape assessment, as referred to earlier in this report. The audit report also criticises the absence of dates. The report is dated and reflects the current state of the environment that the corridor passes through. If it had been historic, this would have been acknowledged.

The audit is critical of the assessment method adopted in the landscape assessment. Instead the auditor considers that the assessment should have adopted a catchment based approach. Catchments would have only covered part of the concession route and as with Boffa Miskell's earlier report would have been too coarse to meaningfully address the effects of the proposal. While it is agreed that catchments would be useful for a strategic assessment of landscape values, they are not considered appropriate for a project specific assessment.

The methodology used in the landscape assessment has been used extensively in New Zealand and its sequential nature simply responds to the linear nature of the 'project' in this instance. The comments in the audit regarding assessment methodology are inconsistent with what is accepted as practice by eminent landscape professionals for concession applications in particular. Although criticism is levelled at the use of terms like 'limited' to describe some impacts and there is an inference that the summary table is "partisan", there is no explanation for, or justification of, these comments, which appear to be critical for the sake of being critical. It is, however, acknowledged that provision of a scale to help further explain the effects ratings would be useful, although the descriptive comments and findings already elaborate on any 'ratings'.

The audit identifies a number of what it regards as flaws with respect to the validity of the landscape assessment. The audit does not agree with the definition of some 'segments', but does not elaborate on why this is, nor explain exactly which 'segments' are incorrect. The segments are considered to be valid in the context of both landscape characteristics on the ground and the potential effects of the monorail and its construction. Both limbs were taken into account in identifying the segments and it is unclear if this has been understood in the audit or whether the audit simply focused on existing landscape conditions.

The audit report considers that the assessment ranking is flawed due to 'localised effects' and 'external effects' effectively being subordinated to the 'composite effects/conclusion'. In our view this is a matter of interpretation. The composite effects ratings are not simply the result of averaging the ratings for localised and external effects in a reductionist manner, as is implied in the audit report. Rather, they were derived from taking into account both existing values and the identified effects of the monorail project as a whole, recognising that in some situations just one effect or value can be more important than all others, and that in other situations it is the accumulation of values and effects that give rise to a composite effect or effects. It is considered that this approach is clearly reflected in discussion of key findings after the summary table of key effects (all effects, not just composite effects / conclusions). It is also noted that

although the audit is critical of the method employed it does not suggest alternative parameters or criteria which could have been used.

The audit determines that there is no basis for the landscape assessment reaching its conclusion that the landscape effects associated with this proposal are acceptable. Despite this criticism the audit report does not suggest a viable alternative method of assessing the landscape effects, or provide any feedback that might assist with refinement of the preliminary assessment. Although generalisations are made about the subject landscape's high levels of naturalness and remoteness, and reference is also made to the ecological report's finding that the proposal could affect the integrity of the Snowdon Forest Conservation Area, this does not assist a re-examination of the landscape effects. Nor do earlier references to a 'catchment based assessment' as an alternative assist in any way.

The audit concludes that the landscape assessment cannot conclude that the proposal will meet the relevant statutory tests, including the effects of the development on the Outstanding Natural Landscape status. The audit concludes that the monorail will significantly compromise the outstanding natural values of the landscape and the 'landscape integrity' of the Snowdon Forest Conservation Area and Te Wahipounamu South Westland NZ World Heritage Area. These conclusions are reached without any assessment method being provided, without any detailed landscape value identification and sensitivity analysis and without reference to the concession route's role and contribution to either the Snowdon Forest Park or Te Wahipounamu South Westland NZ World Heritage Area.

4.4 AQUATIC ECOLOGY – RYDER CONSULTING

Overall it is considered that the NIWA aquatic ecology report was well received by DoC's auditors. The report was deemed to be an appropriate approach to assessing freshwater ecology and potential issues. The NIWA report was commended on addressing previous concerns regarding the lack of baseline information.

There are however four areas where additional information and/or clarification has been deemed necessary. These are outlined and discussed below.

The audit considers there to be a lack of quantitative data on periphyton cover and biomass in the NIWA report. There is concern that this may limit the assessment of the monorail construction effects, including the effect of canopy modification on the growth of periphyton, particularly didymo. Periphyton sample collection was conducted in late May, not long after substantial flooding had occurred in the area. The visual assessments in the field confirmed that algal cover was generally sparse at that time. It is considered by NIWA's periphyton expert Ms Kilroy that if such a "one off" more quantitative measurement of periphyton biomass had been undertaken at that time, this would not have altered the overall assessment, as it focussed mainly on the species composition and the presence/absence of rare/unusual taxa in the area.

There is concern in the audit that the NIWA report did not consider the potential effects of sedimentation on fish spawning. The effects of sediment on fish spawning were not specifically mentioned in the NIWA report, although there was a discussion of the general effects of sediment on biota. An increase in fine sediments is likely to be deleterious for fish in many respects, as it has the potential to alter food supply, alter the fish's ability to feed and may directly affect fish gills and respiratory physiology. Reductions in fish spawning and impaired egg development are other potential effects. The timing of trout spawning, egg development and hatching in New Zealand streams is well understood, and increased sedimentation may have a deleterious effect on these processes from about August through to November (inclusive). The timing of spawning and egg development for native non migratory galaxiids is poorly understood, but is probably also likely to be in spring.

NIWA were of the opinion that there is little advantage in limiting construction of the monorail to specific times of the year in order to protect both spawning trout and native fish, since fish (and other biota) may be vulnerable to increased sedimentation at all times of the year.

Instead the NIWA report suggested that best practice management of sediment should concentrate on avoiding or minimising sediment discharges at all times, especially in small streams which have naturally low sediment input. In this respect minimising should be interpreted in three ways – minimising the frequency of events, minimising the magnitude of events, and minimising the duration of events.

The audit report expresses concern that the NIWA report did not suggest the mitigation option of improving habitat for native fish by constructing barriers to trout and/or removing trout from habitats. The NIWA report stated that RHL would need to be aware of potential effects on native fish populations if the construction processes altered access by trout to some streams. Trout are common and widespread in the rivers and streams surveyed along the proposed monorail route, and their continuing presence is very likely to be deleterious to populations of some native fish. Some localised populations of native fish, including threatened species, probably persist because trout are excluded by natural features such as waterfalls. It will be important for RHL to identify such situations, so that any effect of the construction process on these isolated populations is completely avoided.

The audit report states that the NIWA report did not consider or assess the effects of the water take from Mararoa River to supply Kiwiburn Terminus. The taking of any water would be a regional council matter, to be addressed as part any subsequent resource consent process. Any abstraction is also likely to be of a minor nature and therefore would be unlikely to have any significant adverse ecological effects on the aquatic ecology of the river. Conditions attached to any resource consent would likely require any take to have adequate fish screening implemented.

4.5 RECREATION – RECREATION AND TOURISM CONSULTING

The recreational audit contains a general review of the likely recreational effects, and a more specific discussion regarding the methodologies and effects assessment employed by Rob Greenaway in RHL's recreational assessment.

Firstly the recreational audit states that it is not clear if the proposed alignment has been selected to minimise effects on recreational values. We note that the route selection does not seek to minimise effects on any one value. Route selection is bound by the practicality of negotiating terrain, while minimising effects on a variety of values, including terrestrial ecology, aquatic ecology, landscape and also recreation. All of these values have been considered in the establishment of the proposed corridor, and identification of these values will be used to further refine the monorail alignment through the design process as outlined above.

The tone of the audit report suggests that any adverse effect of the proposal on recreation is unacceptable and must be avoided. However, the auditor does not express an opinion as to whether the description of the scale of the effects in the recreational assessment is accurate, whether there can be mitigation, and whether the proposed mitigations are adequate.

The auditor is of the view that a primary recreation value of the Kiwi Burn track is that it successfully caters for novice trampers in a pleasant and peaceful location. The auditor suggests that replicating that opportunity elsewhere in the immediate area will be difficult, since the Kiwi Burn Hut is currently located in what could be described as "the ideal" hut location for the area. On this basis there is an inference that the alternative location is not appropriate. Currently access to the existing Kiwi Burn Hut includes boggy terrain and requires a number of river crossings with a poorly marked track across the river flats. This is unlikely to be ideal for novice trampers. There is a suggestion in the audit that the relocation of this track and hut will change the experience for trampers who seek a first entry level tramping experience and therefore alter the opportunity setting. RHL's assessment acknowledges that there will be interactions with the monorail at specific points along the route, and the effect of any interaction is what the recreational assessment seeks to quantify. It should also be noted that the proposed location of the new hut was suggested by DoC staff, and RHL will continue to work with DoC to ensure its preferred location for the hut is selected.

The audit suggests that the recreational assessment has adequately canvassed the written material on recreational use of this area, but that it fails to interpret the recreational values of the area overall. It is agreed that the setting is of regional value as identified by the auditor. The recreational assessment uses a Recreational Opportunity Spectrum (ROS) analysis to review the recreational values as well as a description of recreational use. Section 5.2.1 of the recreational assessment defines the approach taken with the ROS analysis. The auditor has not indicated whether these classes are appropriate. The maps attached to the audit report do not use the same data as the recreational

assessment to develop the ROS classes which limits the comparability of the audit conclusions.

The audit criticises the application of the ROS classifications, in particular where the monorail route passes through existing remote/backcountry areas, and a corridor enclosing the route classified as a "backcountry 4x4" ROS setting is described. Figure 6 of the recreational assessment shows the area immediately beside SH94 and the Mavora Lakes Road is classed by DoC as "backcountry drive in", here road users can stop their cars at any point and access the 'backcountry'. In the case of the proposed monorail, it provides no access to the backcountry for visitors. The mountain bike route provides for only cycling and walking. For this reason the ROS classification should consider the degree to which the monorail changes the ROS class in the setting as a physical structure and not as a form of access. If it is to be compared with a road, then it cannot be considered to access anything but the road at either end. The effect on the ROS classification is therefore confined to the corridor from where it can be seen and heard.

The audit questions the compatibility of a monorail with adjoining recreational users and considers this to be a key element in the assessment of recreational effects. The audit report suggests that a monorail and mountain bike trail would be incompatible with the existing recreational activities and experiences that are sought in this area. We would contend that the proposal should not be dichotomously considered with the activity being either 'compatible' or not. The recreational assessment has endeavoured to define the scale of effect for the proposal and the level of mitigation, and describe these to decision makers. The recreational assessment does not consider that the project will be 100% compatible with existing activities. It considers that there will be effects of a certain scale and mitigation could reduce the scale of particular effects. It appears from the conclusion of the auditor that they consider the proposed mitigation to be reasonable (refer section H of the audit report).

The audit states that the proposed relocated Upukerora to Army Hut track would be more difficult for visitors and create a less desirable tramping opportunity. There is no recommendation as to whether the auditor considers that the net effect of the alternative route and proposed mitigation is appropriate. With a proposal like this, it is not possible to retain exactly the same experience as currently exists in the existing setting. Change will occur and this is accepted in the recreational assessment. For this reason the recreational assessment defines scales of effect rather than merely stating whether the proposal is compatible with the existing setting or not. It is also noted that the final route would be developed in conjunction with DoC.

The recreational assessment considers the effect of the proposal on the current spectrum and level of recreation opportunities that exist in the area. The intent of the assessment is to describe how a similar spectrum and level of opportunities can be achieved in the presence of the monorail once mitigation has been employed. We consider that a balanced assessment is required, which considers the positive and adverse effects to arrive at an overall informed decision.

The audit criticises the lack of alternatives considered when selecting a monorail and considers that the selection of a monorail has limited justification. The report goes on to say that the construction of a single lane road would have less of an impact and should have been considered. The concession application is for a specific purpose. The assessments that have been prepared define the effect of the monorail proposal on existing key values, including recreation. A comparative assessment of alternatives that are not being pursued by the applicant is of no assistance to the quantification of effects of this proposal.

The audit also states that the concession application is silent about the maintenance and ownership costs of recreational facilities constructed in accordance with this proposal. The maintenance and ownerships costs of recreation facilities constructed in association with this proposal are yet to be attributed. This will require further discussion between the parties.

4.6 NOISE – BEL ACOUSTIC

The noise audit concludes that the noise assessment that accompanies the concession application appears to have been based on the most appropriate and practicable standards. The audit report notes that there are no specific limits on noise levels that must be achieved on the conservation land concerned.

The auditors agree with RHL's noise assessment prepared by Marshall Day Acoustics that in this setting, activity noise should be controlled to meet the expectations of the users of the area to ensure that any wildlife would not suffer to an extent that could adversely affect their wellbeing.

The auditors generally agree with the mitigation and conclusions of RHL's noise assessment and recommend four conditions relating to noise effects to be attached to the concession application. These conditions are deemed to be generally appropriate by RHL's experts.

5. MOUNTAIN BIKE TRAIL

As you know, the construction of the monorail will require a separate construction track along its length as an access way for machinery and vehicles during construction. Once construction is complete this track will not be required, but could be used for maintenance and emergency access. As part of the concession application RHL proposes to maintain the construction track and include it is a part of longer cycle way to be constructed between Queenstown, Te Anau Downs and Te Anau Township. This cycle way is regarded as an alternative tourism experience which would add an additional element to the monorail proposal.

As already mentioned the concession application sought an easement corridor of up to 200m wide within which both the monorail and construction track would be located.

Further detail has been requested to assist in the assessment of effects of the proposed mountain bike trail. The proposed mountain bike trail would be located on both private land and DoC estate. Additional work has been commissioned to define precise route coordinates. The additional work involves using existing historical stock tracks where possible, and the avoidance of sensitive forest and wetland areas. The results of this additional work will be provided to DoC as soon as they become available. The route selection will as a priority minimise adverse effects on ecological values in a similar way to that proposed for the monorail. In this regard a report detailing the terrestrial ecology values and mitigation required has already been provided early 2010.

In terms of construction standard, this would be to Department of Conservation standards and use identical construction methods for bridging and earthworks (for example). These aspects would be developed further via the management plan approach.

RHL has also been working on a route between Te Anau Downs and Te Anau township, however this is outside the conservation estate so will be addressed in more detail at the appropriate time.

6. CONCLUSION

Overall RHL considers that it has compiled and submitted a comprehensive environmental impact assessment. The experts engaged by RHL are leaders in their respective fields and have prepared robust, accurate and objective assessments that can be relied upon. The assessments have determined appropriate standards for mitigation across the relevant matters to ensure that the overall level of effect on the values within the DoC estate is more than acceptable.

The mitigation approach generally involves the use of management plans to guide the way in which the development will occur. This is preferred from both an environmental and commercial perspective to that of staging the development. RHL is offering an extensive package of “pre activity” conditions that will require extensive work to be undertaken prior to commencing construction activities.

Developed design and further onsite investigation necessary prior to construction will assist in populating and refining the content of these management plans. This work would be undertaken in collaboration with DoC. The management plans would remain “live” throughout the construction and operation of the monorail and would be regularly updated to reflect current knowledge. Ongoing monitoring and reporting would be required to assess how the existing environment is responding to the presence of the monorail and enable the applicant to respond accordingly so as to ensure any potential adverse effects are detected early and mitigated appropriately. The monitoring proposed would also ensure that mitigation measures such as the proposed predator control are successful.

It is accepted and demonstrated throughout the assessments contained within the concession application that the affected area has significant ecological values, but in RHL's opinion none that are so significant that they dictate the project cannot proceed. The proposed monorail and mountain bike trail would be designed so that to the greatest extent possible adverse effects on the DoC estate are avoided, and where they cannot be avoided they would be carefully and extensively mitigated, or offset.

ATTACHMENT 1

Draft Forest Management Plan

DRAFT

Riverstone Holdings Limited

Fiordland Link Experience

Forest Management Plan

September 2010

mitchell partnerships

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1. BACKGROUND

Riverstone Holdings Limited proposes the "Fiordland Link Experience" to improve access to Te Anau, Milford Sound and Fiordland generally by reducing travel times from Queenstown. The Fiordland Link Experience is intended to be a high quality tourism experience which will provide an opportunity for local and international visitors to experience landscapes and ecosystems that they would not normally encounter, whilst at the same time reducing the tourist load and improving visitor experience at Milford Sound/Piopiotahi by spreading arrivals more evenly throughout the day.

The route crosses 29.5 km of land administered by the Department of Conservation which would be traversed by monorail. The proposed monorail route crosses a broad area of mountain, silver and red beech forest with short excursions into grassland along the river flats of the Mararoa, Whitestone and Upukerora valleys. The route lies within Snowdon Forest Conservation Area and is within the South West New Zealand World Heritage Area. The route includes examples of nationally, regionally and locally significant ecosystem types which require protection. Snowdon Forest generally is regarded as having regional importance.

Any adverse effects on the remaining indigenous vegetation in this area would be a cause for concern because of the high ecological values the area has. Specifically the following habitats are regarded as particularly important:

- Red beech forest. This forest has intrinsic value, but also provides habitat for threatened species including birds and bats. This habitat is located in patches along the route.

- Moderately tall, dense beech forest. This provides habitat for threatened species such as rifleman. This is the most common forest type along the route.

- Regenerating forest with a high diversity of species, including fruiting species. This habitat is adversely affected by deer and is rare along the route and in the wider area. This habitat type is valuable for fruit eating fauna.

- Forest edges. The route is located close to the forest edge along most of its length. This habitat is also adversely affected by deer, but is important for buffering the forest from external events.

In order to protect the high ecological values found along the route, four management plans are proposed which address particular issues of concern during the construction and operation phases of the project, in addition to a Communications Protocol. The management plans are:

- **Construction Management Plan**. This includes consideration of matters such as erosion and sediment control, hazardous substances, noise

management, traffic management, , accidental discovery and cultural protocols, waste management and rehabilitation after construction.

- **Operations and Environmental Management Plan**. This includes consideration of matters such as operation and maintenance of the monorail, emergency access, operation of the termini, operational risk management, other recreational users and environmental monitoring and management (including ongoing rehabilitation).

- **Forest Management Plan**. This includes consideration of matters such as wood volume and the ultimate fate of any cleared vegetation and describes the management actions which will be implemented to avoid and remedy any adverse effects predicted to occur as a result of the proposal particularly through the forested sections of the route.

- **Predator and Weed Control Management Plan**. This outlines predator and weed management and monitoring along the route before and during construction. It also describes the offsite predator control proposed in the Eglinton Valley.

These plans are intended to act in concert to provide clear documentation of the expectations and requirements imposed by any Department of Conservation Concession or subsequent resource consent conditions to protect the ecological values present along the route. These plans will be developed further in consultation with the Department of Conservation and local iwi.

In addition to the four management plans, a separate Communications Protocol is proposed to manage the relationship between the Department of Conservation and Riverstone Holdings Limited, identify stakeholders and progress the developed design and construction phases of the project so as to ensure protection of ecological values.

The most recent version of each plan will be held at the main site office at all times throughout construction. Contractors and subcontractors will be required to acknowledge that they have read the plan and agree to abide with it. The project manager will be responsible for monitoring the goals and objectives of the plan and ensuring they are consistently achieved.

[At this stage the Forest Management Plan is in draft form. As the developed design and construction methodologies are finalised the plan will need updating to account for improved knowledge. Updated versions will be produced after comment and input from stakeholders and once a supplier joins the project and a contractor is selected to construct the works. The document should be thought of as a "live document" that will be updated throughout the construction process and to which the applicant and its contractors and others will be required to conform.]

1.1 APPROACH TO CONSTRUCTION

In order to construct the monorail a separate construction track is proposed, to be located at some distance from the monorail track. This approach was deliberately chosen to reduce the width of the vegetation clearance required in any one location and retain canopy cover where practicable. Furthermore a number of ecologically significant sites, such as Dunton Swamp, have been deliberately avoided by the proposed route.

The construction tracks and spur tracks do not have any particular constraints on their location and the location can be selected to avoid removal of large trees. In selecting a route where the monorail needs to climb or descend a slope, the alignment is constrained with respect to grade and angle of curvature, which means that avoidance of large trees, while theoretically possible, is practically likely to be difficult to achieve.

Most spur tracks will be completely rehabilitated (including planting if appropriate) after the construction is complete, while a small number will be partially rehabilitated (excluding planting) and remain for emergency access. The construction track will remain as a route for cyclists.

1.2 POTENTIAL ADVERSE EFFECTS

Construction of the monorail will require vegetation clearance including that growing within the route and that overhanging the route to a minimum height of approximately 7 m. The exact height of vegetation clearance will depend on how high above the ground the monorail is at any particular location. Clearance of vegetation is necessary to provide a 6m wide monorail track footprint and a 3m wide construction track, with short spur tracks approximately every 200 – 300m linking the two.

This will result in clearance of 21.96 ha of forest habitat along the route. This is conservatively estimated to include approximately 10, 859 trees and 14, 439 saplings and represent a volume of 10, 637 m^3 of wood (Mitchell Partnerships January 2010). In terms of area, 21.96 ha represents 0.049% of the forested portion of the Snowdon Forest Conservation Area (estimated at 44, 880 ha). A similar proportion of trees found within the reserve would be affected, but because of the patchy distribution of species in the forest according to their site preferences, some trees could be over-represented in the vegetation to be removed if their preferred sites were more common along the route.

The removal of 21.96 ha of beech forest requires mitigation. The mitigation proposed is ecosystem management to improve the productivity of bat and bird populations over 200 ha in the Eglinton Valley.

Whilst RHL and its advisors consider 200 ha of pest control to be adequate mitigation for the foreseeable adverse effects of the monorail, monitoring is proposed along the monorail route (and in a similar area nearby) to determine the magnitude of any adverse effects on the species living there (as detailed in the Predator and Weed Management Plan). For example the monorail could

increase movements of predators along the route, thereby increasing the risk of predation for the species found there. If monitoring indicates that further mitigation is required, then expert advice (including from the Department of Conservation) would be sought and further mitigation planned and implemented. Such mitigation would depend on the nature and magnitude of the effects detected, but could include (by way of example) protection of individual mistletoe plants from possums or local predator removal to protect native species with small home ranges such as rifleman or lizards.

1.3 ECOLOGICAL CRITERIA

In the ecological survey which accompanied the Concession Application to the Department of Conservation to allow construction and operation of the monorail ecological criteria were proposed to take account of the habitats and species identified along the monorail route and protect ecological values (Mitchell Partnerships Ltd, October 2009, Section 8). These criteria have been adopted by this plan. The criteria are:

i. Removal of large beech trees, i.e. those with a diameter exceeding 40 cm, shall be avoided where practicable.
ii. Removal of large red beech trees shall be avoided where practicable.
iii. Removal of large podocarps shall be avoided where practicable.
iv. Bat roosts shall be identified and avoided where practicable.
v. The following significant habitats shall be avoided where practicable:
    - Red tussock grasslands.
    - Short tussock grasslands.
    - Wetlands.
    - Environments L1.1c (fertile well drained flood plains) and L3.1b (high elevation wetlands).
    - Tall red beech forest.
    - Tall mountain or silver beech forest.
    - Regenerating shrubland and forest edge.
    - Matagouri shrubland and other shrublands dominated by divaricating species.
    - Bog pine shrubland.
vi. The amount of earthworks shall be minimised to reduce weed invasion. This will include locating the construction track to suit topography and minimise changes to local hydrology.
vii. The alignment shall identify and avoid threatened plant species such as *Alepis flavida*.
viii. The alignment shall be chosen so as to retain as much tree canopy over the monorail as practicable.
ix. If trees with a diameter exceeding 40 cm must be removed then priority shall be given to protecting either bat roost trees, the largest trees, or the largest number of large trees.
x. The construction track shall avoid swampy ground where practicable and cross streams at the most ecologically advantageous location.
xi. The construction track shall stay out of the forest where it is ecologically advantageous to do so, for example if the grassland vegetation is predominantly exotic.

xii. "Nodes" of spur tracks, passing bays and minor site depots will be located in places with low ecological values that are easily rehabilitated once construction is complete.

The developed design phase and alignment selection will:

- Implement these criteria where practicable.
- Identify where the criteria cannot be met.
- Propose mitigation to provide for instances where the criteria cannot be met.

1.4 OBJECTIVES

The purpose and overall goal of this plan is to guide the way in which forest removal will be taken into account during the final route selection, and to achieve the vegetation clearance required to construct the monorail whilst minimising any collateral damage to vegetation nearby. The objectives of this Forest Management Plan are to guide the final route selection and all construction and maintenance activities to reduce any effects on terrestrial ecology.

To minimise the effects of the proposal on the terrestrial ecology, the objectives include:

- Using **appropriate ecological criteria** select the final route alignment to avoid as far as is practicable significant ecological areas including large beech trees and bat roost trees.

- **Minimise collateral damage** to standing trees near those required to be felled.

- **Minimise the introduction and spread of weeds** on both disturbed and undisturbed areas.

- **Minimise damage to roots** of trees near the route.

- **Maximise reuse of leaf litter and other materials** that will be useful in the establishment of appropriate vegetation on spur tracks and other rehabilitated areas. The process of rehabilitation is considered in more detail in the Construction Management Plan and the Operations and Environmental Management Plan.

- **Manage woody debris** and trees felled during clearance so as to avoid any adverse effects on the remaining vegetation.

While the adverse ecological effects have been predicted, it is appropriate that monitoring of vegetation and fauna along the route during construction and operation of the monorail be carried out to confirm expected effects are being mitigated and identify any unexpected effects. Monitoring is outlined in Section 3.

Associated with the monitoring is a need to have a range of contingency measures identified which can be implemented promptly to address any observed effects greater than those predicted. Contingency planning is considered in Section 4.

2. VEGETATION REMOVAL MANAGEMENT

Vegetation removal will include:

Pre-Construction Phase

- Define the monorail alignment and the exact location of construction track, spur tracks, passing bays and any minor depots. This will be an iterative process which seeks to minimise adverse ecological effects, including avoidance of large trees and bat roosts (detected by survey if necessary) where possible. This will involve Department of Conservation staff (as outlined in the proposed Concession Conditions).
- Identify the number and location of large trees that will be removed and agree on any management actions necessary to protect ecological values or mitigate their loss with the Department of Conservation. This process will include representatives of Riverstone Holdings and the Department of Conservation walking the route and deciding each instance on a case by case basis.
- Quantify the actual amount of vegetation removal that will be required (including number of trees and volume of vegetation within specific sections of the route).
- Carry out a pre-construction survey of plant health along the route (This is described further in Section 3 Monitoring).
- Undertake pre-construction weed control using hand removal, herbicide or other suitable methods to remove any weeds found in the pre-construction survey.

Construction Phase

- Physically mark the 3m wide horizontal alignment of the construction track and spur tracks on the ground implementing the ecological criteria outlined above and providing at least 10m horizontal clearance from any large trees where possible so as to protect their roots. Physical marking of the footprint will ensure areas outside those required to be cleared can be protected. The vertical height of the construction track (to allow traffic movement) will also be marked.
- Fell vegetation and remove according to the process identified in Section 2.1.
- Remove leaf litter and any soil required and stockpile.
- Construct the construction track providing at least 50mm of granular metal base, with a deeper base used in areas with a soft or wet substrate.
- Physically mark the actual 6m wide horizontal alignment and the vertical alignment (dependent on pier height) of the monorail on the ground allowing for any temporary cut and batters or sediment control that may be required.

- Fell vegetation and remove according to the process identified in Section 2.1.
- Remove any leaf litter and soil required and stockpile. Create any sediment control/water tables required and excavate foundations for piers.
- Put piers in place, construction of the monorail can then occur independently.
- Reinstate ground profile and rehabilitate (with litter, mosses) as required ensuring the area around each pier is rehabilitated as required and complete before moving to the next pier. Plant and machinery will proceed in one direction only along each short section of the monorail route between spur tracks so as to allow sequential rehabilitation behind the construction.
- Regular annual surveys of plant health along the route and at the control site as outlined in Section 3.
- Monitor plant health and weed control as described in Section 3.
- Manage (by removal, trimming, or a decision not to manage) any vegetation adversely affected by the construction track.

On-going Management

- Weed monitoring and removal will be carried out on a regular basis as specified in the Construction Management Plan and Operation and Environmental Management Plan. Monitoring the effectiveness of weed control will form part of this monitoring.
- Monitoring of any revegetation or rehabilitation will be conducted to ensure it is successful.

2.1 VEGETATION CLEARANCE

2.1.1 Tree felling

Tree felling will take place progressively over a period of up to three years as the construction proceeds. By clearing a small area at a time the potential for weed invasion at any one site is reduced.

2.1.2 Volume

As indicated in Section 1.2 above, the construction of the monorail is conservatively estimated to require the removal of approximately 10, 859 trees and 14, 439 saplings and represent a volume of around 10, 637 m^3 of wood (Mitchell Partnerships January 2010). This includes 5, 248 small trees (diameter at breast height ('dbh') 10-29.5 cm), 3, 903 moderate sized trees (dbh 29.5 – 50 cm), 1, 647 large trees (dbh 50 – 100 cm) and 61 very large trees (dbh > 100 cm). It should be noted that this estimate has made no attempt to avoid large trees and thus the estimates for large trees represent a conservative maximum. This estimate will be refined once the final alignment is confirmed.

2.1.3 Method

Chainsaws will be used to fell the trees as precisely as possible. Of the 22.9km of the route through forest, approximately 6.1km is located on flat land and a further 2.6km is located on swampy land. At these locations (8.7km in

total) it should be easy to fell trees along the route and prevent collateral damage to standing trees outside the alignment. The remaining 14.2km of the route are located on side slopes, although only approximately 3km of the route crosses areas where these slopes are steep. For the 11.2km located on gently sloping side slopes it should be relatively easy to fell trees along the alignment. For the 3km located on steep slopes it will be more difficult and may require other methods to ensure standing trees nearby are protected such as felling trees piece by piece or using excavators to help control tree fall.

2.1.4 Disposing of vegetation

Cut vegetation could be disposed of in one or more of the following ways:

- Subject to the approval of the Department of Conservation, under certain circumstances vegetation could be removed from the conservation estate, for example some trees may be large enough to be of use for cultural or other purposes (wood turning etc).
- Removed from the monorail route, but left within the conservation estate, for example trees could be moved to suitable locations where they will not obstruct construction.
- Left where they fall along the monorail route with those that impede construction moved to a location nearby.
- Left where they fall and then cut into smaller pieces to make them easier to move. They could then be moved aside, relocated within the conservation estate or removed altogether.
- Mulched. The mulch could then be left in the vicinity of the monorail, relocated within the conservation estate or removed altogether.

The following considerations are relevant in the disposal of cut vegetation:

- Depositing the cut material in nearby forest (on conservation land) could potentially lead to additional habitat damage to transport cut material to its final location.
- If large quantities of wood were deposited in one place there is a potential for insect and fungal infestation that could spread to living trees under stress, for example a *Sporothrix* outbreak. *Sporothrix* in particular favours wet, dead wood.
- Decomposing forest material has ecological benefits by recycling nutrients and providing habitat for decomposers and saprophytes.
- Under normal circumstances native wood from the conservation estate is only rarely available for cultural or other purposes, and then only when specifically permitted.

It may be that it is appropriate for wood to be removed under certain circumstances. The following suggestions are proposed as a basis for discussion:

- Any trees with a dbh of 400mm or more could be offered for iwi use in the first instance. If they are not required by iwi then a small number could may be made available for other purposes (wood turning, furniture making etc).

- Other trees with a dbh of 400 mm or more could be stockpiled and used to rehabilitate spur tracks or for other rehabilitation.
- Trees with a dbh 200 – 400mm could either be stockpiled and used as part of rehabilitation or cut into shorter lengths and relocated within the conservation estate away from the monorail route. The lengths will be such that they can be positioned away from the route without causing further damage to vegetation.
- Trees and saplings with a dbh < 200mm will be mulched and the mulch used as part of rehabilitation or scattered across rehabilitated sites.

2.2 MAINTAINING A CLEAR ROUTE

The route will be walked every six to twelve months with Department of Conservation staff to identify any trees that need to be removed or pruned. This approach has been adopted by DownerEDI Works in the maintenance of the Milford Road.

3. MONITORING

3.1 NATIVE VEGETATION

3.1.1 Minimising Collateral Damage

In order to minimise collateral damage along the construction track the ecological criteria outlined in Section 1.3 will be implemented in the final route selection. In addition the footprint will be kept as small as practicable at any given time, experienced woodsmen will be employed and large trees will be felled in small pieces if necessary to avoid collateral damage.

In addition, when the clearance is taking place the applicant's Project Manager will visually inspect each construction front on a weekly basis to ensure the following performance standards are being met by the contractors and subcontractors carrying out the clearance. Contracts will include penalty clauses where appropriate if these standards are not met. Areas which are being felled prior to construction will be inspected regularly and the performance standards below (or others negotiated with the Department of Conservation) will apply.

3.1.2 Performance Standards

- To protect trees near the monorail alignment and construction track route no more than 10% of trees will be allowed to fall outside the clearance footprint.
- Contractors or sub-contractors carrying out the vegetation clearance will be required to record daily any instances when a tree falls outside the footprint and report them to their supervisor who will in turn report them to the Project Manager. The Project Manager will inform the Department of Conservation's Independent Project Advisor when the above standard is breached.

More than 10% of trees falling outside the clearance footprint on a given day will trigger the contingency process outlined in Section 4.

3.1.3 Vegetation Health after Clearance is Complete

Vegetation health could be affected by canopy removal or damage to roots caused by vehicle or other movements. Roots will be protected where possible by avoiding cutting of any roots and where necessary filling over roots to create a benched surface rather than excavating. Vegetation along the route will be monitored using a Before – After: Control – Impact ('**BACI**") design. This involves monitoring vegetation health along the route and in one similar control site nearby before construction begins and at regular intervals thereafter. For this purpose the route will be divided into short sections appropriate to the speed of construction. Data to be gathered within each section will include species composition, cover abundance in all tiers of vegetation, plant condition considering leaf colour, leaf wilt, and physical dieback of plants (or parts of plants) and weed presence. The second monitoring will be carried out three months after construction of a particular section is completed and then annually thereafter for a period of two years after construction is complete. This may include photo points and will be completed by a suitably qualified ecologist during construction.

The precise identification of minor effects within the monitoring sites will be very difficult because stands of bush naturally change, and are naturally variable across the landscape. For this reason, monitoring will be carried out at a level of detail that will detect the more obvious changes, with the monitoring effort being increased as and when indicator triggers are observed. Triggers of significant plant health issues will include:

- Obvious dieback in the canopy along the route or within 10m either side of the alignment.
- A reduction in average canopy cover of more than 10% along the alignment or within 10m either side of the alignment for more than 100m in one location or for more than 300m along the whole route after vegetation clearance and construction is complete.
- More than 10% mortality of understory species along the alignment or within 10m either side of the alignment for more than 100m in one location or for more than 3km along the whole route.
- Discolouration and/or wilting of leaves in more than 10% of the plants along the alignment or within 10m either side of the alignment for more than 100m in one location or for more than 3km along the whole route.

In the event of one of the triggers being activated the contingency response will be activated. This response is described in Section 4.

Monitoring of rehabilitated sites and fauna species is dealt with separately in the Construction Management Plan.

3.2 WEEDS

Vegetation clearance will be progressive and undertaken in stages to minimise the size of the disturbed area at any one time. Sites will be rehabilitated as soon as practicable to establish a cover resistant to weed invasion. Weed monitoring will involve:

- Monthly inspection of the working area, including any imported materials such as gravel, and any track cleared to date during construction will be completed by a contractor sufficiently able to identify the weeds present. The frequency of this inspection will reduce to twice annually (in spring and autumn) once construction of a particular section is complete.
- The target is 0% presence of weeds in forested sections.

Triggers of significant weed issues in the forests along the route will include:

- Presence of any woody weed species within the forested sections of the route.
- Importation of weed propagules on materials (i.e. failure of site biosecurity).

4. CONTINGENCY PLAN

4.1 CONTINGENCY FOR COLLATERAL DAMAGE

This contingency will be triggered if more than 10% of felled trees fall outside the clearance footprint.

4.1.1 Actions

- The staff responsible will meet with the Project Manager and Department of Conservation Project Advisor at the location where the trigger was activated.
- The staff responsible will explain why the trigger was activated and how, in their view, a repeat can be avoided if possible.
- The Project Manager and Department of Conservation Project Advisor will review the situation and determine how best to proceed.

4.2 CONTINGENCY FOR SIGNIFICANT PLANT HEALTH ISSUES

This contingency will be triggered if any one of the following occurs at the three monthly or subsequent monitoring inspections:

- Obvious dieback in the canopy along the route or within 10m either side of the alignment.
- A reduction in average canopy cover of more than 10% along the alignment or within 10m either side of the alignment for more than 100m in one section or for more than 3km along the whole route after vegetation clearance and construction is complete.

- More than 10% mortality of understory species along the alignment or within 10m either side of the alignment for more than 100m in one section or for more than 3km along the whole route.'
- Discolouration and/or wilting of leaves in more than 10% of the plants along the alignment or within 10m either side of the alignment for more than 100m in one location or for more than 3km along the whole route.

4.2.1 Actions

The contingency measures would need to rectify the observed vegetation ill-health. In the first instance this will involve identifying the cause of any ill-health. Identifying the cause of ill-health will be undertaken in consultation with the Department of Conservation and other recognised experts where appropriate.

By way of example remediation options could include:

- Supplying or removing water to affected trees by way of drainage diversion.
- In the case of threatened flora, translocation of the affected plants to a better site, if practicable.
- Increased herbivore control.
- Replacement planting, including species more likely to survive.
- Controlled removal of trees that might fall and cause further damage.

In cases where remediation is not possible, or would not be achieved promptly, such as replacement planting, then alternative mitigations could be targeted. Any such mitigation options would need to reflect the ecological values being lost, but by way of example may include:

- Additional restoration works within the Mavora Ecological Region including fencing or other protection of currently unprotected sites (if available).
- Increased mitigation at the Eglinton Valley site.
- Establishment of additional offsite mitigation in a vegetation type or habitat of higher ecological value.

Any mitigation measures would need to be undertaken in consultation with the Department of Conservation and any affected landowners. Consents or approval from local authorities may also be required.

4.3 CONTINGENCY FOR WEEDS

This contingency will be triggered if live weeds are found during the regular inspections of the working area and completed track.

4.3.1 Actions

- Weeds along the route can be manually removed or treated with herbicide (spray, gel or granules as appropriate) during the surveys.

5. REFERENCES

Mitchell Partnerships. October 2009. Terrestrial Ecology of the Proposed Fiordland Monorail Route. Prepared for Riverstone Holdings Ltd. Mitchell Partnerships Ltd. Auckland.

Mitchell Partnerships. January 2010. Spring Survey Report for Proposed Fiordland Link Experience Monorail Route. Prepared for Riverstone Holdings Ltd. Mitchell Partnerships Ltd. Auckland.

ATTACHMENT 2

Draft Predator and Weed Control Management Plan

DRAFT

Riverstone Holdings Limited

Fiordland Link Experience

Predator and Weed Control Management Plan

30 September 2010

mitchell partnerships

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1. INTRODUCTION

Riverstone Holdings Limited proposes the "Fiordland Link Experience" to improve access to Te Anau, Milford Sound and Fiordland generally by reducing travel times from Queenstown. The Fiordland Link Experience is intended to be a high quality tourism experience which will provide an opportunity for local and international visitors to experience landscapes and ecosystems that they would not normally encounter, whilst at the same time reducing the tourist load and improving visitor experience at Milford Sound/Piopiotahi by spreading arrivals more evenly throughout the day.

The route crosses 29.5 km of land administered by the Department of Conservation which would be traversed by monorail. The proposed monorail route crosses a broad area of mountain, silver and red beech forest with short excursions into grassland along the river flats of the Mararoa, Whitestone and Upukerora valleys. The route lies within Snowdon Forest Conservation Area and is within the South West New Zealand World Heritage Area. The route includes examples of nationally, regionally and locally significant ecosystem types which require protection. Snowdon Forest generally is regarded as having regional importance.

The route as a whole forms part of the Te Wahipounamu – Southwest New Zealand World Heritage area. This international status requires that the habitats along the route be managed to retain their ecological integrity.

Ecological integrity is interpreted as considering whether all indigenous plants and animals typical of the region are present, major ecosystem processes are intact and ecosystems occupy the full environmental range. The fundamental components of ecological integrity are indigenous dominance, species occupancy and environmental representativeness. In order to maintain the ecological integrity of the route and its surrounds it is important to prevent exotic weeds establishing and protect native species from pests where practicable to ensure their persistence.

The concession conditions require that a Predator and Weed Control Management Plan be prepared in consultation with the Department of Conservation to protect the ecological integrity of the forest surrounding the route. This plan is to be integrated with the other management plans (Forest Management Plan, Construction Management Plan and Operations and Environmental Management Plan) required by the concession conditions.

The purpose of this plan is to describe the main components of a predator and weed control programme in order to manage weeds and pests along the route line and construction track both during construction and after construction is complete. In instances where acutely threatened species (bats, birds, or plants) or significant habitats are discovered prior to construction, the concession holder is required to reach agreement with the Department of Conservation as to the type and quantum of mitigation to be provided to protect the species

concerned. The mitigation will be specific to the species or habitat identified and the quantum will be consistent with the level of any effects and once decided will be described in this plan.

In addition to the onsite weed control and the mitigation that may be required for significant habitats or species along the route an intensive offsite pest management programme is to be implemented over 200ha in the nearby Eglinton Valley to offset the removal of approximately 22ha of beech forest habitat required for the construction of the monorail.

Prior to this draft plan being finalised the details will be discussed and confirmed with the Department of Conservation. Once operational it is intended that further consultation with the Department of Conservation would be required should any changes to the plan be deemed necessary. This plan will be updated at five yearly intervals to reflect the results of monitoring undertaken by the concession holder and any relevant advances in knowledge or technology.

2. OBJECTIVES

The primary objective of this plan is to reduce predators and weeds within the construction envelope and to enhance the productivity and persistence of threatened flora and fauna found both in the vicinity of the monorail and in the offsite predator control area.

The objectives of this predator control plan are to the extent practicable:

- Prevent weeds establishing along the route.
- Protect significant habitats or acutely threatened species along the monorail route.
- Detect and counter any increase in use of the monorail route by pest species brought about by construction and operation of the monorail.
- Offset adverse effects on flora and fauna resulting from the monorail construction.
- Detail ecosystem enhancement intended to compensate for the removal of approximately 22ha of forest habitat along the route to allow construction of the monorail (the offsite predator control area).

3. PREDATOR AND WEED MANAGEMENT ALONG THE ROUTE

3.1 GENERAL PRINCIPLES

3.1.1 Weed Management

The target for terrestrial weed presence after construction and rehabilitation is complete is 0% in forested areas and 20% for other areas. Effective weed management is based on the following principles which are considered in more detail in Section 4 below:

- Determining the extent of weeds prior to construction (Section 4.1).

- Preventing weeds establishing to the extent possible (Section 4.2).
- Detecting weeds that do establish (Section 4.3).
- Preventing weeds from setting seed (Section 4.4).
- Controlling established weeds effectively (Section 4.5).
- Prompt and effective rehabilitation (Section 4.6).

Monitoring of weeds is discussed in Section 7.

3.1.2 Predator Control along the Route

Once the final monorail alignment and construction track has been selected in consultation with the Department of Conservation, but before construction begins, RHL will engage an appropriately qualified expert, or team of experts, to walk the proposed route and identify any significant habitats for acutely threatened species, including long-tailed and short-tailed bats, South Island Kaka, grey duck, black fronted tern, black billed gull, mohua, New Zealand falcon and *Kirkianella novae-zelandiae.* Mitigation to protect chronically threatened species such as *Alepis flavida* and rifleman will also be investigated as appropriate. If any significant habitats or individual specimens of threatened plants are discovered along the route a management programme and management targets will be developed and agreed with the Department of Conservation as required by the Concession conditions. The type and quantum of mitigation to be provided will be specific to the species concerned and reflect the scale of any effects. This is considered in Section 5 below.

3.1.3 Offsite Predator Control Area

Riverstone Holdings Limited recognises that the construction of the monorail will require the removal of 22ha of high quality forest habitat. In order to offset this loss, an ecosystem enhancement programme is proposed to cover an area of 200 ha within Crown Land/Fiordland National Park. This is discussed in Section 6 below.

3.1.4 Monitoring

Monitoring of the site through pre construction, construction and operation is seen as critical to achieving the desired result of maintaining ecological integrity of the site. Monitoring is discussed in Section 7 below.

4. WEED MANAGEMENT

4.1 PRE CONSTRUCTION - BASELINE SURVEYS

Two pre-construction weed surveys are required by the consent conditions:

- A survey of the streams along the route to detect didymo.
- A survey for terrestrial weeds along the final monorail alignment and construction track. Any weeds identified in this pre construction survey will be removed by a suitably qualified person using an appropriate method(s).

4.2 DURING CONSTRUCTION - PREVENTING WEED ESTABLISHMENT

Adequate biosecurity for machinery and materials brought onto site will reduce the chances of weed propagules (seeds, spores, plant fragments) entering the site and thereby reduce the chances of establishment. This involves:

- Cleaning machinery before bringing it on to the site. To this end a vehicle wash station will be established at each of the three construction depots and all vehicles or machinery entering the route will be required to wash their tyres, undercarriage and any parts that may contain soil or vegetation.
- Other materials brought onto the site, including gravel, will be required to be free of seeds or pieces of vegetation as part of the contracts for supply. Using locally sourced gravel or other materials where possible will also reduce the possibility of bringing new weeds to the area.
- Regular monitoring will be carried out to detect weeds along the route. This will be complemented by regular weed control using manual removal or judicious application of herbicide.
- Construction will be staged to minimise the amount of bare soil at any one time.
- Any areas of bare soil which persist for longer than four weeks will have regrowth controlled regularly if required.

4.3 DURING CONSTRUCTION - DETECTING WEEDS

In order to control weeds, they must be correctly detected and identified. The monitoring schedule to detect weeds is outlined in Section 7.1. The following principles will apply:

- In cases where herbicide is applied the contractor will be required to have the appropriate Grosafe certification, take all precautions to prevent a spill (as outlined in the Hazardous Substances Management Plan) and to apply chemicals so as to reduce any accidental death of adjacent plants.
- During each inspection significant weed infestations will be mapped and their locations recorded. Locations of significant weed infestations will be targeted during any weed control efforts.

The frequency of weed monitoring may be adjusted (requiring monitoring more or less often) as necessary when this plan is revised following consultation between RHL and the Department of Conservation.

4.4 DURING CONSTRUCTION - PREVENTING WEEDS FROM SETTING SEED

Twice annual inspection and control according to the protocol outlined in Section 7.1 should ensure that weeds are controlled before they can set seed.

4.5 DURING CONSTRUCTION - CONTROLLING ESTABLISHED WEEDS

Areas with a history of disturbance such as riparian areas or tussock grassland are likely to have a high existing weed component. To avoid spreading these weeds the following will be adopted:

- Cleaning machinery before entering the site (as above).
- The project engineer will instruct staff operating earthworks machinery to limit the amount of earthworks, and therefore the creation of easily colonised bare soil.
- Bare soil will be planted or seeded to restore a vegetation cover as soon as practicable after works are completed.
- Monitoring and weed control will be carried out as outlined in Section 7.1.

4.6 POST CONSTRUCTION – REHABILITATION

To avoid any long term effects due to the construction of the monorail, rehabilitation of the worked area will be implemented as soon as practicable after construction is complete. The following methods will be adopted as part of the rehabilitation programme:

- Reinstatement of natural vegetation will begin immediately in areas where the monorail construction has been completed. This reduces the amount of weed propagule pressure and increases the chances of native cover establishing.
- Within the forest, along the short sections of the route supplied by each spur track (up to perhaps 400 m in length) and along the spur tracks themselves, where practicable any bryophyte ground cover will be removed intact, stored and then replaced intact after the construction work is completed.
- Where the ground profile has been reinstated on slopes the area of bare soil created under the monorail will be densely planted or seeded with suitable, low growing, native species. The same applies to any track batters or other bare ground created in the forest.
- Any parts of the construction track that are to be rehabilitated will be lightly ripped to reduce soil compaction caused by repeated movements over the track. They will then be planted with appropriate species sourced from the local Ecological District.
- Cuttings and batters will be engineered and planted or seeded to reduce sediment runoff on slopes and avoid altering the local hydrology. By using mulch, slash or direct transfer where soil is excavated a prompt return to vegetation cover is expected.
- After completion of any construction work any areas of bare soil or disturbed tussock grassland which cannot be vegetated using direct transfer will be densely planted with native species to prevent establishment by weeds.
- Where bare soil is exposed for prolonged periods (longer than four weeks) weed control will be carried out where necessary.

- Prompt remediation of storage depots, constructed portions of the route and spur tracks that are no longer required combined with monitoring and removal of weeds and pests is expected to result in the quickest return to natural conditions and create a situation where a sustainable indigenous vegetation cover is created.

After construction and rehabilitation is complete post construction monitoring will be carried out as discussed in Section 7.2 below.

5. PEST MANAGEMENT

5.1 MINIMISING THE EFFECTS ON NATIVE FAUNA DURING CONSTRUCTION

Construction has the potential to affect native species, for example felled vegetation material may provide refugia for small mammals and encourage them to establish along the route. Alternatively a cleared alignment may provide an access route for mammalian pests between the significant habitats along the route. These small mammals have the potential to adversely affect native species. In addition storage depots and piles of construction materials may be used by wildlife such as lizards as retreats. During construction the following will be implemented to reduce any adverse effects on native fauna:

- Cut vegetation will be dealt with as outlined in the Forest Management Plan. This will minimise the amount of cut vegetation along the route available as cover for pests.

- Monitoring to determine whether the construction does lead to a local increase in mammal abundance along the route and if so then mammal control will be implemented to protect native species (see Section 7.3 below).

- Storage depots will be located in sites that are already modified, thereby reducing the potential for their use by wildlife. By reducing the amount of time materials are stored and always removing stored materials carefully any risks to resident wildlife will be reduced.

5.2 IDENTIFYING THE NEED FOR PREDATOR CONTROL DURING CONSTRUCTION

Regular monitoring of the flora and fauna along the route during the construction and operation of the monorail will determine if the route is having any adverse effect on the terrestrial ecology of the area and trigger management action if required. As outlined in the Forest Management Plan a Before – After: Control – Impact (BACI) monitoring design will be implemented involving monitoring along the route and in a similar (experimental control) area nearby before and during construction and operation.

Pests (rats, possums, mustelids) will be monitored four times per year (once in each season) before and during construction at three locations: along the route, at the nearby experimental control site and at the offsite predator control site. The presence and relative abundance of small birds will be monitored annually during spring at the same three locations. The method of monitoring will be determined in consultation with the Department of Conservation according to the Department's Standard Operating Procedures for these species when monitoring commences.

Monitoring will also determine how effective rehabilitation along the route has been and whether further intervention, such as herbivore removal, is required to assist the vegetation in returning to its natural state as outlined in Section 7.2.

6. OFFSITE PEST CONTROL

Riverstone Holdings Limited recognises that the construction of the monorail will require the removal of 22ha of high quality forest habitat. In order to offset this loss, a predator control programme is proposed to cover an area of 200 ha within Crown Land/Fiordland National Park.

[*Boyd Creek is suggested as the location for this offset, but specific location and control methods for this predator management area will be developed in consultation with the Department of Conservation, Te Anau Office.]*

Fiordland National Park is considered to be the best location for this predator management area because it also has international status and is identified in the Conservation Management Strategy (2000) as a priority site for biodiversity management. The Eglinton Valley 'Operation Ark' project is located within the park and additional expenditure within the park has the potential to add value to the efforts already in place there.

The ideal site would encompass some or all of the ecological values present along the monorail route (identified in the survey of ecological values carried out by Mitchell Partnerships Ltd in 2009), and include as many of the threatened species found in the vicinity of the route as possible. In particular habitats which have bats (both long and short-tailed), mohua, kaka and New Zealand falcon are preferred as candidates for this predator management area because they are the most acutely threatened species which are likely to be affected by the proposed monorail.

Once the Offsite pest control location is confirmed and a programme is developed in consultation with the Department of Conservation the following matters will be addressed:

- The pest species to be targeted by the Plan e.g. deer, rodents, mustelids, possums;
- The specific method to be employed to reduce pest numbers. This includes consideration of the duration, location, type and frequency of trapping or other forms of control including the management regime proposed for periodic checking of traps and bait stations if applicable.

- The resources to be employed to successfully implement the predator management plan;

This plan will provide a description of the location of the proposed habitat enhancement and predator control programme. The control methods that are to be employed at this site will need to be flexible and consistent with the existing operations by the Department of Conservation in the area so as to avoid behavioural, physiological or other resistance evolving to the methods employed and for that reason may change over time. Close liaison and communication with the Department is intended to keep abreast of any changes in their management regime that may affect the predator management regime at the site.

7. MONITORING

Vegetation monitoring will consist of two main tasks:

- Monitoring of the existing habitats before, during and after construction to detect changes in the vegetation or changes in weed abundance which might trigger management action as specified in the forest management plan. This is considered in Section 7.1 below.
- Monitoring of rehabilitated habitats during and after construction to determine if further intervention is required. This is considered in Section 7.2 below.

Monitoring data will be collected according the schedule outlined here and collated and interpreted regularly so that management decisions are informed and timely. The concession conditions require the following reporting to take place:

- Rehabilitation monitoring – within one month of completion;
- Pest mammal and small bird monitoring – annually;
- Presence of Didymo – before construction commences; and
- Weed monitoring – within one month of completion.

7.1 MONITORING OF EXISTING HABITATS DURING CONSTRUCTION

Monitoring of existing habitats is required during construction as outlined in Sections 4.2 – 4.5. Specifically this involves:

- Monthly inspection of the working area and any track cleared to date during construction to identify and remove common weeds.
- The frequency of this monitoring will reduce to twice annually (in spring and autumn) after construction is completed.
- The location of all significant weed infestations will be mapped so that the most likely location of new weed populations can be identified. This information may allow weed sources to be identified and the removal of these sources will reduce the future weed control required.

- Weeds or small vegetation affecting the track can be manually removed or treated with herbicide during the six monthly vegetation surveys. A simple clearance rule for native vegetation near the track will be developed once the exact parameters of the clearance required by the monorail car are known. The target for weed presence is 0% in any forested plot and less than 20% cover in any non-forested plot.
- Annually walking the route in conjunction with Department of Conservation staff to identify any trees that pose a risk to the monorail or wildlife if they fall.

7.2 MONITORING OF REHABILITATED HABITATS

The vegetation beside the route will be rehabilitated as construction progresses with the goal of restoring a vegetation cover which is low growing but appropriate to the area and matches the surrounding vegetation. Vegetation on spur tracks between the construction track and the monorail will be rehabilitated to match the surrounding vegetation where practicable. Monitoring will determine whether this goal is being achieved. Specifically this will involve:

- Survey of the vegetation approximately one month after rehabilitation of a section is complete. This will identify which plants have survived planting or transfer and what further rehabilitation might be required such as increased planting or weed or pest control.
- Survey of the vegetation approximately three months after the initial one month survey. This will provide a second check on how the rehabilitation is proceeding.
- Six monthly surveys (in spring and autumn) after the second visit. This is expected to coincide with the monitoring of other sites along the route. This will allow prompt management action such as weed control or planting to improve the chances of success. Once native vegetation is dominant (more than 70% cover in grassland plots or more than 95% cover in forested plots) at the site then the rehabilitation will be deemed a success and the monitoring frequency may be reduced to annually if weed presence is low and stable.

7.3 PEST MAMMAL MONITORING ALONG THE ROUTE

Monitoring of the fauna surrounding the monorail is intended to:

- Determine if the monorail is affecting the fauna present by comparing similar forest habitats directly adjacent to and at a distance from the monorail route or construction / cycle track before and during the operation of the monorail.
- Determine whether possum control is effective by undertaking monitoring before and after possum control
- Determine whether pest control in the pest management area is effective in protecting native fauna.

The results of fauna monitoring will be used to inform decisions about the management of the route and the offsite predator control area. If pest numbers

increase, or adverse effects on fauna are identified, then discussion will be held with the Department of Conservation with regard to any changes in management and/or mitigation if required.

7.3.1 Timing and Species to be Monitored

Monitoring will be carried out before, during and after construction to measure the effect of any pest control on pest populations. Experimental control monitoring sites will be established in similar habitat near the route where pest control management is not simultaneously carried out, to determine whether the project has lead to an increase in predators in this area.

The following pest mammals will be monitored before, during and after construction:

- Rat density
- Possum density

Pest control in the offsite predator control area will be integrated with other Operation Ark management in the Eglinton Valley at all times so as to achieve best results.

7.4 MONITORING OF THE ROUTE DURING OPERATION

Regular monitoring of the flora and fauna along the route during the operation of the monorail is also required to determine if the operation of the monorail is having any adverse effect on the terrestrial ecology of the surrounding route and to trigger management action if required. Since the adverse effects (such as weed invasion) may occur at some distance from the track itself, monitoring surveys will also need to consider the habitats surrounding the route.

Monitoring is necessary to determine how effective rehabilitation along the route has been and whether further intervention is required to assist the vegetation in returning to its natural state.

7.5 OFFSITE PEST CONTROL

Once the Offsite pest control location is confirmed and a programme is developed in consultation with the Department of Conservation the following matters will be addressed:

- Suitable monitoring methods to establish whether the programme is working e.g. five minute bird counts or monitoring of predator abundance to ascertain whether the programme is successfully controlling predators.
- Monitoring of other species that are expected to benefit from the programme.

ATTACHMENT 3

Guide to Conditions and Flow Chart

Draft Concession Conditions

FIORDLANDLINK EXPERIENCE

GUIDE TO RECOMMENDED DRAFT CONCESSION CONDITIONS

The draft conditions have been developed in order to illustrate the level of detail and certainty that can be obtained via an appropriately drafted suite of conditions which would be attached to any Concession Easement issued by the Minister of Conservation. The draft conditions attached are indicative only, and have been provided for discussion purposes. RHL will carry out further work with respect to what conditions would be appropriate in consultation with the Department.

The following acts a guide to the structure of conditions which enable the concession holder to construct and operate the proposed monorail, construction track and mountain bike track. The conditions have been generally structured according to the timeframe within which they would need to be acted upon by the concession holder. Those conditions that have general applicability have been set out first followed by pre construction (or pre activity) obligations including monorail route selection, design conditions and management plan preparation and approval by the Department of Conservation. Other conditions relating to construction and operation of the monorail, and ongoing obligations are set out sequentially. The construction and operational conditions generally require the concession holder to implement the various activities and mitigation in accordance with the management plans prepared prior to the activity commencing.

In simple terms the:

1. General conditions (Part One) require:

- Implementation of the project in accordance with the Concession Easement granted.

2. Pre construction conditions (Part Two) require:

- The appointment of an Independent Project Advisor;
- The appointment of monorail supplier;
- Walk through with DoC, RHL, and advisors;
- Design development of all buildings and structures, the monorail itself, the construction track and spur tracks, the mountain bike track, and associated mitigation measures and infrastructure;
- Design development of construction methodology, logistics etc;
- Preparation of a full risk assessment;
- Preparation of each management plan and approval of that management plan by DoC; and
- Final route and alignment selection and detailed design subject to ecological criteria.

3. Construction conditions (Part Three) require:

- The construction of the monorail and mountain bike and associated buildings and structures to approved standards; and
- Implementation of the approved management plans, including weed and pest control during construction.

4. Operational conditions (Part Four) require:

- Operation of the monorail, buildings and other systems to approved standards.
- Ongoing implementation of the approved management plans.
- Ongoing monitoring with procedures in place if monitoring identifies certain effects or issues; and
- Ongoing pest and weed control measures.

The role of the Project Advisor (funded by RHL) will be to manage the implementation of the Concession through the pre-construction to operational phases. The proposed conditions will ensure that person (or persons) has the structure in place to ensure appropriate measures are implemented so as to result in minimal adverse effects on important species or habitats, and that overall the project has a net environmental gain.

Each management plan will be required to be prepared prior to undertaking any onsite activities or construction work. RHL and its experts appointed to prepare the various plans will work collaboratively with the Department of Conservation in order to prepare a management plan that achieves both environmental and project objectives. The conditions will require that each plan is also submitted to the department for approval. RHL will not be able to progress from the pre construction phase to the construction phase of the project until all the management plans have been prepared to the satisfaction of the Department of Conservation and all necessary pre activity surveys and other work has been completed. This will provide the department with certainty in terms of the identification and management of effects throughout construction and operation of the monorail.

RHL will be required to undertake the construction and operation of the project with strict adherence to the plans. Any variations to the plans that are required as the construction phase progresses will be discussed and approved by the Department of Conservation before being implemented. Construction conditions also set out specific obligations that RHL will be required to adhere to throughout this phase, for example adherence to construction noise standards, hazardous substance management, and adherence to an accidental discovery protocol.

The operational conditions manage the way in which the monorail and associated activities will be managed in the long term. Ongoing environmental monitoring obligations will be adhered to via conditions, and the implementation of the offsite predator control will be managed via these operational conditions.

The process and structure of the conditions and the interrelationship with the various management plans is demonstrated in the following flow chart.

FiordlandLink Experience – Post Concession Approval Process

CONCESSION GRANTED SUBJECT TO CONDITIONS - 2011

CONDITIONS
- Pre construction obligations including Management Plan and communication protocol preparation
- Implementation of project in accordance with Management Plans
- On-going operational and environmental obligations adhered to for life of project

RMA AND OTHER APPROVALS PHASE – up to 12 month process
- RMA Resource Consents Approved Subject to Conditions
- Other statutory and non-statutory approvals

MANAGEMENT PLANS

PRECONSTRUCTION PHASE – up to 12 month process
- Appointment of independent project advisor
- Appointment of monorail supplier
- Walk through with DoC, RHL, and advisors
- RHL to prepare Management Plans
- Design development of monorail, infrastructure, buildings
- Programme and logistics plan
- Full risk assessment
- Final route and alignment selection and detailed design subject to ecological criteria

FOREST MANAGEMENT PLAN:
- Guides the way in which forest removal will be taken into account during the final route selection, and implemented during the construction phase of the project.
- Objective will be to minimise as far as is practicable any adverse effects on the forest environment.

RHL IS REQUIRED TO FULFIL ALL PRECONSTRUCTION (PRE-ACTIVITY) CONDITION OBLIGATIONS BEFORE COMMENCING ANY ON-SITE CONSTRUCTION ACTIVITY

CONSTRUCTION MANAGEMENT PLAN:
- Guides the way in which construction activities will be managed, while avoiding and/or mitigating adverse effects on the environment.
- Sets out controls regarding use of hazardous substances, traffic, noise, ecology, recreation.

CONSTRUCTION PHASE – circa 30 month process
- Commence construction of project in accordance with Management Plan methodologies and parameters:
- Forest removal
- Noise, traffic controls
- Erosion, sediment controls
- Accidental discovery protocols
- Weed and pest management controls

PREDATOR AND WEED CONTROL PLAN:
- Guides the way in which pests and weed species will be managed throughout the construction and operational phase.
- Sets out the objectives, methods and monitoring requirements for both onsite and offsite predator control.

RHL IS REQUIRED TO FULFIL ALL CONSTRUCTION CONDITION OBLIGATIONS BEFORE COMMENCING OPERATION

OPERATIONAL PHASE
- Testing
- Rehabilitate areas in accordance with Management Plans
- Operation of monorail, buildings, infrastructure
- Operation of maintain bike track
- Maintenance requirements
- On-going monitoring – ecological, safety
- Ongoing pest control – onsite and offsite areas

OPERATIONAL AND ENVIRONMENTAL PLAN:
- Guides the way in which the monorail and ancillary activities (e.g. mountain bike track, other recreational facilities) will be managed in the long term.
- Sets out maintenance obligations for the monorail
- Sets out ongoing environment and ecological obligations.

Prepare, implement and adhere to Communications Protocol throughout preconstruction, construction and operational phase

- *This flow chart is intended to be representative only and not exhaustive*

Document Date: 30 September 2010

FIORDLANDLINK EXPERIENCE
DRAFT RECOMMENDED CONDITIONS OF CONCESSION

PART ONE: GENERAL

Concession Term

1. The concession term shall be for a period of 49 years.

2. A ten year lapse period applies from the date of final issue of the concession, within which the concession is to be given effect to.

3. The concession holder shall prepare to the approval of the Department of Conservation such management plans as are required to give effect to the purposes and objectives specified in this concession. The following management plans shall be prepared by the concession holder and submitted to the Department of Conservation for approval:

   a. A Communications Protocol;
   b. A Construction Management Plan;
   c. A Forest Management Plan;
   d. A Predator and Weed Control Management Plan; and
   e. An Operational and Environmental Management Plan.

4. The concession holder shall work collaboratively with the Department of Conservation to ensure that ample notice of the delivery date for each plan referred to in condition 3 is provided to assist the Department of Conservation with planning the allocation of resources to assess each of the plans.

5. All management plans shall state the objective or objectives sought to be achieved by such plans.

6. The concession holder shall pay all actual and reasonable costs of the Department of Conservation in connection with the review of all management plans prior to their approval.

7. Except with the prior written approval of the Department of Conservation, the concession holder shall not proceed from the pre-construction to construction phase of the project unless and until all pre-construction conditions have been fully complied with.

PART TWO: PRE-CONSTRUCTION

Mountain Bike Track

8. Prior to the commencement of construction of the monorail the concession holder shall submit to the Department of Conservation the following additional effects assessment to confirm the effects and level of mitigation associated with the proposed mountain bike track from the 29km mark:

    a. Recreation effects assessment;
    b. Landscape effects assessment;
    c. Terrestrial ecology effects assessment;
    d. Aquatic ecology effects assessment; and
    e. Hydrology and geomorphology effects assessment.

Communications Protocol

9. Prior to the commencement of construction the concession holder shall submit a Communications Protocol to the Department of Conservation for approval. The Communications Protocol shall outline the process for conducting relationships and reaching agreements between the concession holder and Department of Conservation. This will include agreements with respect to:

    a. The process to select the precise route of the monorail within the 200m/300m corridor;
    b. The operational response to a range of foreseeable eventualities which may occur during the construction of the monorail;
    c. The methods proposed for construction of the monorail and associated facilities and the program for construction of each element; and
    d. Agreement on the process to select the route and form of the mountain bike track, from that location where it will deviate from the monorail.

Final Route Selection

10. In selecting the final route for the monorail the concession holder shall have particular regard to the following ecological criteria:

    a. Fertile well drained flood plains and high elevation wetlands (LENZ environments L1.1c and L3.1b respectively) shall be avoided wherever practicable. If it is not practicable to avoid these areas then they must be fully rehabilitated as soon as practicable;
    b. Removal of large beech trees shall be avoided where practicable to protect their intrinsic value;
    c. Removal of large red beech trees shall be avoided where practicable to protect their value as wildlife habitat, particularly for bats and hole-nesting birds;
    d. Removal of any large podocarps shall be avoided where practicable because of their rarity in the area and value for wildlife (particularly frugivorous and cavity nesting birds);
    e. Further survey will be carried out to identify existing bat roosts in large trees, particularly red beech. If practicable these shall be avoided and buffered from construction activity. If it is not practicable to avoid such

trees construction shall be timed, if practicable, to avoid the breeding season or roost use by birds or bats and mitigation shall be developed in consultation with the Department of Conservation;

f. Significant habitats shall be avoided wherever practicable. These include:
   i. Red tussock grasslands.
   ii. Short tussock grasslands.
   iii. Wetlands.
   iv. Fertile, well drained flood plains (Environment L1.1c).
   v. Tall red beech forest.
   vi. Tall mountain or silver beech forest.
   vii. Regenerating shrublands and forest edge.
   viii. Matagouri shrubland, or other divaricating shrubland.
   ix. Bog pine shrubland.
g. The amount of earthworks required shall be minimised along the route to reduce the potential for weed invasion;
h. The route shall avoid threatened plant species such as *Alepis flavida* wherever practicable. Further survey along the corridor may be needed to identify particular host trees. If it is not practicable to avoid host trees then mitigation, such as protection from possums shall be considered and developed in consultation with the Department of Conservation; and
i. Where practicable tree canopy cover over the monorail shall be maintained. This will be achieved, by selecting a route requiring reduced vegetation clearance relative to other routes so as to maintain canopy cover in the first instance and by judicious felling of individual trees so as to avoid collateral damage.

Final Route Selection – Construction Track

11. The final route for the construction track should be selected with particular regard to the following criteria:

a. That it be located to suit the topography so that earthworks, changes to local hydrology, grades and the environmental damage caused by creating a formed track are minimised;
b. That the felling of trees is avoided wherever practicable, especially trees with a dbh of more than 40 cm. If trees with a dbh of 40 cm or more must be removed then priority should be given to protecting either those which are active or potential bat roosts, the largest number of trees with a dbh of greater than 40 cm, or the largest trees (in that order);
c. Where practicable tree canopy cover over the track shall be maintained. This will be achieved by choosing a route that requires reduced vegetation clearance so as to maintain canopy cover in the first instance and judicious felling of individual trees so as to avoid collateral damage;
d. Crossing streams at the most ecologically advantageous location, which is where temporary bridges can be constructed and environmental effects minimised;
e. Avoid (where practicable) crossing environmentally sensitive swampy ground.
f. Where practicable staying out of the forest where the monorail route lies just inside the forest and the grassland vegetation is predominantly exotic;

g. Passing through areas most suitable for minor site depots; and
h. Locating “nodes” of spur tracks, minor site depots and access points away from sensitive sites where practicable and ideally in places with low ecological value that are easily rehabilitated after construction is complete.

Independent Project Advisor

12. Prior to the commencement of construction of the monorail, the concession holder shall engage an Independent Project Advisor. The Independent Project Advisor shall be nominated and appointed by agreement between the concession holder and the Department of Conservation. The Independent Project Advisor will report to the Department of Conservation. The role of the Independent Project Advisor shall include (but is not limited to):

a. Assisting in the determination of the final route for the monorail construction and mountain bike routes;
b. Reviewing and assessing the management plans in terms of the quantification of adverse effects, level of mitigation or offsetting required, and planned monitoring;
c. Building an effective working relationship and mutual trust between the concession holder and the Department of Conservation and other key stakeholders;
d. Acting as a liaison for all parties, to promote the flow of information between the concession holder, contractors and the Department of Conservation in order to anticipate and resolve any potential issues before they arise;
e. Assessing the level of effects generated once construction commences, ensuring consistency with management plans and conditions of the concession; and
f. Evaluating the results of any monitoring activities.

Construction Management Plan

13. Prior to the commencement of construction, the concession holder shall submit a Construction Management Plan to the Department of Conservation for approval. The overall objectives of the Construction Management Plan shall be to:

a. Provide guidance on environmental management for the construction of the monorail and associated facilities;
b. Reduce any adverse environmental effects associated with construction activities where practicable; and
c. Provide detail of the construction methodologies and management of effects during construction.

14. The purpose of the Construction Management Plan shall be to:

a. Describe the methods proposed for the construction of the monorail and associated infrastructure and the programme for construction of each element;

b. Describe what actions will be taken to manage the actual or potential effects of construction activities;
c. Provide a list of key personnel and points of contact throughout the construction period; and
d. Describe how stakeholders will be kept informed during construction and how complaints (if received) will be managed.

15. The concession holder shall ensure that the Construction Management Plan includes a sub-set of management plans that cover the following topics as a minimum:

a. Health and Safety;
b. Hazardous Substances;
c. Traffic Management;
d. Noise Management;
e. Risk Management;
f. Waste Management;
g. Archaeological and Heritage Protocols and Plans;
h. Mitigation of Effects on Users of the Area (e.g. trampers, fishers, hunters, kayakers);
i. Erosion and Sediment Control;
j. In River Works; and
k. Terrestrial Ecology Management.

16. The concession holder shall ensure that a Health and Safety Plan is prepared and submitted to the Department of Conservation in accordance with condition 13. The objectives of the Health and Safety Plan shall be to:

a. Avoid harm to the workforce and visitors on site during construction of the monorail;
b. Identify areas where construction works are likely to overlap with areas used by the public and include management provisions to ensure the safety of both contractors and the public; and
c. Identify, isolate and minimise any risks associated with hazards, and to implement and adhere to appropriate emergency protocols and incident reporting.

17. Prior to the commencement of construction a list of all hazardous substances likely to be stored, handled or used in the construction of the monorail will be complied. The concession holder shall ensure that material safety data sheets (MSDS) are held on site for all chemicals included in this list.

18. Prior to the commencement of construction the concession holder shall develop procedures for the storage and handling of the hazardous substances listed in accordance with condition 17. The concession holder shall ensure that all staff are trained in the management of hazardous substances.

19. The concession holder shall ensure that a Hazardous Substances Management Plan is prepared and submitted to the Department of Conservation in

accordance with condition 13. The objectives of the Hazardous Substances Management Plan shall be to:

a. List the hazardous substances kept on site and record the material safety data sheets (MSDS).
b. Reduce the risk that hazardous substances pose with respect to environmental and health and safety matters including risks to staff and the public from the accidental discharge of hazardous substances;
c. Ensure that all practicable measures are taken to safely store hazardous substances and to reduce the likelihood of accidental spills; and
d. Reduce the adverse effects of any accidental spills.

20. The concession holder shall ensure that a Traffic Management Plan is prepared and submitted to the Department of Conservation in accordance with condition 13. The objectives of the Traffic Management Plan shall be to reduce construction traffic and vehicle movements as far as is practicable so as to allow a safe and efficient construction programme and reduce the impact of traffic associated effects, including safety, noise and traffic flow on both internal roads and the public roading network. The Traffic Management Plan shall be prepared in consultation with key stakeholders including the NZ Transport Agency, and local roading authorities. It shall detail the traffic management measures to be put in place during construction including as a minimum details of the following:

a. Anticipated volume of construction traffic, and haulage requirements;
b. The methods for construction traffic controls on public roads, including State Highway 94;
c. Identified and approved routes for the haulage of material along public roads, and measures to ensure that the public road network is maintained in a satisfactory condition; and
d. Management procedures for onsite traffic during construction, including speed limitations to minimise noise and dust generation.

21. The concession holder shall ensure that a Noise Management Plan is prepared and submitted to the Department of Conservation in accordance with condition 13. The objective of the Noise Management Plan shall be to reduce as far as practicable the impact from noise arising during the construction of the monorail and associated activities. The Noise Management Plan shall include the methods and measures to reduce any adverse effects of noise on the surrounding environment including as a minimum details of the following:

a. Measures to ensure compliance with relevant standards for construction noise including NZS6802:2008 “Environmental Noise” and NZS6803:1999 “Construction Noise” (or relevant subsequent standards);
b. Noise associated with helicopter landings measured and assessed in accordance with NZS6807:1994 “Noise Management and Land Use Planning for Helicopter Landing Areas” (or relevant subsequent standards); and
c. Contingency measures (in the event that construction noise standards are exceed) to be developed.

22. The concession shall ensure that a Risk Management Plan is prepared and submitted to the Department of Conservation in accordance with condition 13. The objective of the Risk Management Plan shall be to identify potential risks and determine a risk management strategy so as to avoid, mitigate, transfer, or accept any risks identified. The purpose of the Risk Management Plan shall be to ensure that appropriate measures are in place to deal with accidents, or emergencies and that any incidents or potential incidents are dealt with effectively and efficiently. As part of the Risk Management Plan the concession holder shall:

    a. Maintain on a regular basis a risk register that covers the following matters as a minimum:
        i. Health and safety risks;
        ii. Environmental risks;
        iii. Technical risks;
        iv. Timing risks;
        v. Fire risks; and
        vi. Weather and Natural Hazards risks.

23. The concession holder shall ensure that a Recreational Management Plan is prepared and submitted to the Department of Conservation in accordance with condition 13. The objective of the Recreational Management Plan shall be to minimise the actual or potential effects from construction activities on recreational users in the vicinity of the route. The Recreational Management Plan shall be prepared in consultation with the Department of Conservation and shall consider the following details as a minimum:

    a. Timing, sequencing and location of construction activities;
    b. Provision of suitable alternative tracks and huts available to recreational users during construction;
    c. Location and design of recreational facilities at the Kiwi Burn, details regarding car parking and access to the swing bridge across the Mararoa River;
    d. The redevelopment of existing recreational facilities to retain existing walking, tramping and hunting values, including realignment of the Kiwi Burn Loop Track;
    e. The establishment and location of a new hut accessible from the realigned Kiwi Burn Loop Track;
    f. Development of a 4WD underpass at the intersection of the monorail and Army Hut vehicle access; and
    g. Realignment of the Army Hut Walk.

24. The concession holder shall ensure that an Erosion and Sediment Control Plan is prepared and submitted to the Department of Conservation in accordance with condition 13. The objective of the Erosion and Sediment Control Plan shall be to reduce any erosion and landform instability resulting from construction activities. The Erosion and Sediment Control Plan shall include the following details:

a. Measures to ensure that work is undertaken in accordance with Auckland Regional Council TP90, and any relevant Department of Conservation Standards;
b. Identification of the works areas and staging;
c. Describe the measures that will be established to minimise erosion and runoff, including the use of energy dissipaters, fencing, hay bales, and sediment retention ponds required; and
d. Describe the rehabilitation that will be implemented post construction to minimise sediment and erosion movement.

25. The concession holder shall ensure that a River Works Management Plan is prepared and submitted to the Department of Conservation in accordance with condition 13. The objective of the River Works Management Plan shall be to ensure that a healthy aquatic ecosystem is maintained in the rivers and streams along the route and that any adverse effects arising from the construction activities are appropriately managed. The River Works Management Plan shall include:

a. Measures to ensure that work within active river beds is avoided as far as is practicable;
b. Measures to ensure that any works which could affect the integrity of the stream bed and bank structure are avoided as far as practicable;
c. Protocols to ensure that all equipment and machinery is cleaned before entering or shifting between waterways to prevent the spread of didymo;
d. Measures to ensure that where it will affect waterways the construction of the monorail is timed where practicable to occur during the summer months; and
e. Measures to ensure that construction within the rivers or streams is undertaken as quickly as practicable to avoid ongoing adverse effects.

26. Prior to the commencement of construction the concession holder shall undertake a survey of all streams and waterways to be crossed by the final route in order to delineate the distribution of didymo through the catchments prior to construction. This study will form the basis for determining whether the streams are didymo free prior to construction and whether didymo control methods may be required in areas where didymo is found after construction of the monorail is complete. The results of this survey shall be submitted to the Department of Conservation.

27. The concession holder shall ensure that a Terrestrial Ecology Management Plan is prepared and submitted to the Department of Conservation in accordance with condition 13. The objectives of the Terrestrial Ecology Management Plan shall be to:

a. Reduce as far as practicable any effects on indigenous flora and fauna arising from construction by:
    i. Where practicable, avoiding any significant indigenous habitats identified along the route;

ii. Locating the construction track where it is most ecologically appropriate, so as to avoid as far as practicable large trees, bat roosts or red beech trees;
iii. Reducing the project footprint;
iv. Locating "nodes" of spur tracks and the construction track away from sensitive sites where practicable and ideally in places with low ecological value that are easily rehabilitated post construction;
v. Implementing measures to minimise the invasion of weeds and predators along the route during construction in accordance with the Forest Management Plan and Predator and Weed Control Management Plan; and
vi. Describing of the monitoring that will need to occur during construction.

28. The concession holder shall ensure that prior to the commencement of construction the final route is clearly marked so as to reduce the construction footprint and avoid any adverse effects outside the footprint.

29. The concession holder shall ensure that all construction staff and contractors participate in an "environmental induction" course run by an appropriately qualified ecologist in order to provide specific training so that all staff and operators are aware of the ecological values along the route, the World Heritage Status of the site and the need to implement the works in accordance with the Terrestrial Ecology Management Plan so as to protect those values to the extent practicable.

30. The concession holder shall ensure that the contractors employed will be experienced woodsmen and chainsaw operators, who have proven ability to fell trees to specification and thereby minimise collateral damage.

Forest Management Plan

31. The concession holder shall develop in consultation with the Department of Conservation, a Forest Management Plan. The concession holder shall prepare the plan and submit it to the Department of Conservation for approval prior to any construction activities commencing. The Forest Management Plan will be integrated with the other management plans required by these conditions and all the management plans shall be consistent with each other.

32. The objectives of the Forest Management Plan shall be to guide the way in which the final route will be selected to avoid as far as is practicable significant adverse effects on the forest, and guide all construction and maintenance activities so as to reduce any adverse effects on terrestrial ecology values associated with forest or tree removal during construction. In order to minimise the adverse effects the Forest Management Plan shall include as a minimum the following details:

a. Ensure that the selection of the final route is in accordance with the ecological criteria set out in conditions 10 and 11;

b. Methods to minimise collateral damage to standing trees near those required to be felled;
c. Methods to minimise the introduction and spread of weeds on both disturbed and undisturbed areas;
d. Methods to minimise the damage to roots of trees near the route;
e. Methods to maximise the reuse of leaf letter and other materials for the establishment of appropriate vegetation on spur tracks and other rehabilitated areas;
f. Methods to manage woody debris and trees felled during construction so as to avoid any adverse effects on the remaining vegetation;
g. Methods to manage the disposal of vegetation; and
h. Contingency measures to address unanticipated or significant collateral damage, plant health issues, and weed invasion.

33. Prior to the commencement of construction the concession holder shall ensure that a baseline survey of vegetation health is carried out along the final route by an appropriately qualified ecologist. The concession holder shall document the state of the vegetation along the route and in one similar control site nearby. The location of the control site will be identified in consultation with the Department of Conservation.

34. For the purpose of the baseline vegetation health survey to be undertaken by the concession holder in accordance with condition 33, the route will be divided into short sections appropriate to the speed of construction. The data that will be gathered in the survey will consist of:

a. Species composition;
b. Cover abundance in all tiers of vegetation;
c. Plant condition considering leaf colour, wilt, and physical dieback of plants (or parts of plants; and
d. Weed presence.

35. The concession holder shall submit the results of the baseline vegetation health survey to the Department of Conservation. These results shall be used for the purposes of comparative analysis of vegetation health during and after construction.

Predator and Weed Control Management Plan

36. Prior to the commencement of construction the concession holder shall prepare a Predator and Weed Control Management Plan. The Predator and Weed Control Management Plan shall be developed in consultation with the Department of Conservation and submitted to the department for approval. The Predator and Weed Control Management Plan will be integrated with the other management plans required by these conditions and all the management plans shall be consistent with each other.

37. The objectives of the Predator and Weed Control Management Plan shall be:

a. To manage the abundance and distribution of predators and weeds within the construction envelope;
b. To ensure that no threatened species occurring within the area become more threatened as a result of the construction activity;
c. To offset, as far as is practicable, any adverse effects on flora and fauna resulting from the monorail construction; and
d. To compensate for the removal of approximately 22ha of forest habitat along the route required for monorail construction.

38. Prior to the commencement of construction activities the concession holder identify along the final route determined in accordance with conditions 10 and 11 any areas of significant habitat for acutely threatened species including grey duck, long-tailed bats, short-tailed bats, South Island Kaka, black fronted tern, black billed gull, mohua, *Kirkianella novae-zelandiae* and New Zealand falcon.

39. If the concession holder discovers any significant habitats identified in condition 40 along the final route, then the concession holder will where practicable avoid the habitat. If avoidance is not practicable the the Concession holder will reach agreement with the Department of Conservation as to the type and quantum of mitigation to be provided to protect the species concerned as provided for in the Communications Protocol required by condition 9.

40. The concession holder shall map and report the significant habitat identified in accordance with condition 39 and notify the Department of Conservation as soon as practicable. The mitigation provided for in Condition 41 shall be implemented as soon as practicable and in all cases before any habitat is removed.

41. Prior to the commencement of construction the concession holder shall prepare as part of the Predator and Weed Control Management Plan an offsite predator control plan. The offsite predator control shall be carried out over approximately 200 ha in the vicinity of Boyd Creek as shown on the attached plan. The purpose of the programme shall be to enhance the productivity of threatened species and habitat found along the monorail route by reducing the mortality due to predators in an area of habitat nearby. The plan shall set out the methods by which predator control and ongoing monitoring obligations will be met for a five year period following commencement of the plan. The plan will be reviewed and updated at five yearly intervals.

42. Prior to the commencement of construction the concession holder shall undertake pre-construction weed control along the final route as provided for in the Predator and Weed Control Management Plan. This could include but shall not be limited to:

a. Manual (hand) weed removal; and/or
b. Herbicide treatment.

Operational and Environmental Management Plan

43. Prior to the commencement of construction of the monorail, the concession holder shall develop in consultation with the Department of Conservation an Operations and Environmental Management Plan. The Operations and Environmental Management Plan shall be submitted to the Department of Conservation for approval. The Operations and Environmental Management Plan will be integrated with the other management plans required by these conditions and all the management plans shall be consistent with each other. The objectives of the Operational and Environmental Management Plan shall be to ensure:

    a. The monorail and its associated tracks and infrastructure are maintained to best practice standards;
    b. The health and safety of the public and employees are protected at all times during the operation of the monorail; and
    c. The footprint and operation of the monorail reduces to the extent practicable any adverse effects on ecological and recreation values in the vicinity.

44. The concession holder shall ensure that the Operations and Environmental Management Plan:

    a. Describes the operational parameters for the monorail, mountain bike track and termini;
    b. Describes all ongoing maintenance requirements during operation of the monorail, including any environmental obligations such as sediment control;
    c. Describes the ongoing health and safety requirements of the monorail and mountain bike track for both the public and employees. This includes identification of hazards (tree fall, slips, weather conditions), and protocols that will be adhered to during emergency situations (e.g. fire);
    d. Includes an operational risk register which will be prepared and adhered to during the operation of the monorail;
    e. Outlines methods to identify and minimise to the extent practicable any effects on users of the area, via a recreation management plan; and
    f. Outlines the ongoing monitoring to ensure site rehabilitation is successful and to identify and respond to adverse environmental effects during the operational phase of the project.

PART THREE: CONSTRUCTION

45. The concession holder has a general obligation to comply with the management plans required by condition 3, and approved by the Department of Conservation.

46. The concession holder may review and amend the management plans as required by condition 3 as necessary subject to prior approval by the Department of Conservation.

Construction Management Plan

47. The concession holder shall implement and adhere to the requirements of the Construction Management Plan required by condition 13 at all times during the construction of the monorail. The Construction Management Plan shall be updated by the concession holder, as necessary subject to approval from the Department of Conservation. The Department of Conservation shall advise the concession holder of any requirement to update the Construction Management Plan in writing. Such a request may not occur more frequently than twice per calendar year. Each updated version of the Construction Management Plan shall be submitted to the Department of Conservation and held at the site office.

Hazardous Substances

48. Refuelling, lubrication, mechanical repairs, and storage of hazardous substances or dangerous goods shall be undertaken in accordance with the Hazardous Substance Management Plan contained within the Construction Management Plan required by condition 13 so as to ensure that spillages of hazardous substances onto the land surface or into a waterbody do not occur and accidental spillages are dealt with appropriately.

49. A spill kit or alternative method will be available at all times onsite or where fuel or chemicals are stored in the event that a spill occurs. The concession holder shall adhere to the spill response contingency measures as outlined in the Construction Management Plan in the event of a spill.

50. Any accidental discharge of greater than 20 litres shall be reported immediately to the Department of Conservation and appropriate regulatory authorities, along with details of the steps taken to remedy and/or mitigate the adverse effects of the spill.

51. All hazardous substances will be stored onsite in a covered and imperviously bunded area.

52. The concession holder shall ensure that records of any spills are maintained and will be made available to the appropriate regulatory authorities upon request.

Traffic Management

53. All traffic management measures associated with the construction of the monorail shall be implemented in accordance with the Traffic Management Plan

required by condition 13, and with the NZ Transport Agency Code of Practice for Temporary Traffic Management including:

a. If road closures or deviations are adopted then the effects on local traffic shall be monitored in accordance with the NZ Transport Agency Code of Practice for Temporary Traffic Management to ensure no traffic hazards or excessive disruption is created;
b. Only identified and approved haulage areas will be used; and
c. Speed of vehicles through the construction area will be managed at all times.

Noise Management

54. The concession holder shall adhere to and implement the noise management mitigation and methods contained in the Noise Management Plan required by condition 13 at all times during the construction period.

55. The concession holder shall adopt the best practicable options to reduce noise levels from plant and equipment operating on site, so as to provide a safe working environment and to reduce any disturbance to other users or wildlife.

56. The concession holder shall comply with the requirements of NZS6802:2008 and the long term noise levels tabulated in NZ6803:1999 (or subsequent relevant standards) where appropriate. The appropriate location for measuring the levels of noise are the walking tracks and other normal activity areas most exposed to noise.

57. Where required construction noise assessment and measurement, shall be carried out in accordance with NZS6801:2008 and NZS6802:2008 (or subsequent relevant standards), by an appropriately qualified noise expert. The results and conclusions of such assessments shall be submitted to the Department of Conservation for review. The Department of Conservation may require additional testing or noise mitigation measures to be taken if non compliance with the relevant standards is evident.

58. The concession holder shall ensure that all noise emanating from helicopter landings will comply at all times with the requirements of NZS6807:1994 (or subsequent relevant standard).

59. At all times during construction of the monorail, the concession holder shall establish and operate a Public Complaints Procedure as follows:

    a. The concession holder shall have a clearly nominated and publicly communicated contact person within its own organisation, or within one of its agents, to receive any complaints during construction;
    b. The consent holder shall erect notices around the construction area in publically visible places (to be agreed with the Department of Conservation) advising of the expected nature and duration of construction works and the telephone numbers to contact should there be any complaints arising from construction activities;

c. The consent holder shall maintain a log of any complaints received including the following details – date, time, complainant name and contact details, nature of the complaint including perceived cause and any effect(s);
d. Where practicable the concession holder shall shall log the action that it intends to take in response and respond to any complaints within 24 hours of receiving them; and
e. The complaint log shall be made available to the Department of Conservation upon request.

Waste Minimisation

60. The concession holder shall ensure that appropriate measures are in place throughout the site to reduce, reuse, recycle and dispose of any waste generated by staff and construction activities.

Accidental Discovery Protocol

61. The concession holder shall ensure that in the event of any Koiwi (human skeletal remains) being discovered during construction the following actions are taken:

a. Construction work within a 50m radius of the site shall cease immediately and indefinitely until Te Ao Marama Inc and/or New Zealand Police advise that it can recommence;
b. Advice of the discovery shall be reported, as soon as practicable, to Te Ao Marama Inc (Ngai Tahu Murihiku Resource Management Consultants), the New Zealand Police, the Project Manager, the Independent Project Advisor and the Department of Conservation;
c. A site inspection by the appropriate Te Ao Marama Inc and their advisors including statutory agencies, and/or the New Zealand Police will be scheduled to determine whether the discovery is likely to be extensive and whether a thorough site investigation is required; and
d. Any materials discovered will be handled and removed by iwi responsible for the tikanga appropriate to their removal or preservation.

62. The concession holder shall ensure that in the event of discovery of any artefact or historical, cultural, or archaeological material during construction, the following shall apply:

a. Construction work within a 50m radius of the artefact or historical, cultural or archaeological material shall cease immediately;
b. Advice of the discovery shall be reported, as soon as practicable, to Te Ao Marama Inc (Ngai Tahu Murihiku Resource Management Consultants), the Project Manager, the Independent Project Advisor and the Department of Conservation; and
c. No work shall recommence until an agreement has been reached between the parties regarding appropriate protection measures for the artefact or material found.

63. The concession holder shall ensure that in the event of accidental discovery of any natural state pounamu/greenstone within the construction area the following shall apply:

    a. Any in situ pounamu found shall be left untouched and reported to the Pounamu Management Officer of Te Rünanga o Ngäi Tahu as soon as is reasonably practicable. The Pounamu Management Officer of Te Runanga o Ngäi Tahu will in turn contact the appropriate Kaitiaki Papatipu Rünanga.
    b. In the event that the finder considers the pounamu is at immediate risk of loss for reasons such as erosion, animal damage or theft, the pounamu / greenstone should be carefully covered over and / or relocated to the nearest safe ground. The Pounamu Management Officer of Te Rünanga o Ngäi Tahu should then be notified as soon as practicable.

Recreation

64. The concession holder shall adhere to and implement any measures outlined in the Recreational Management Plan required by condition 13 during the construction of the monorail.

65. The concession holder shall construct any new recreational facilities in accordance with the requirements of the Department of Conservation and in a manner that provides for the needs of existing users and is sensitive to the surrounding environment as provided for in the Recreational Management Plan.

66. The concession holder shall ensure that a suitable 4WD underpass is provided for access to Army Hut.

67. The concession holder shall ensure that the existing Kiwi Burn loop track is realigned in such a manner so as to limit the mixing of trampers and cyclists with each other and the monorail as far as is practicable.

68. The concession holder shall ensure that in addition to the existing hut at Kiwi Burn, a new hut be constructed for recreational users of the area. The location and design requirements and parameters for the new hut will be agreed with the Department of Conservation and set out in the Recreational Management Plan.

69. The concession holder shall ensure that the realignment of the Army Hut walk is undertaken in accordance with the location agreed with the Department of Conservation as outlined in the Recreational Management Plan.

Stormwater and Erosion Control

70. In carrying out all construction works the recommendations of Auckland Regional Council TP90 for control and treatment of stormwater and sediment runoff shall be generally adopted.

In-River Works

71. In carrying out any in-river construction works the concession holder shall:

a. Keep the affected working area to a practicable minimum and ensure that all plant and machinery working in the river is cleaned prior to entering the water so as to be free of weeds or pest plants (including didymo);
b. Ensure that any reinstatement of works required after floods is, as far practicable, on the recession of the flood, while the river flow is still naturally turbid;
c. Ensure that silt controls are in place and sediment losses to water are avoided to the extent practicable;
d. Ensure that any construction activities do not result in:
    i. The diversion, damming or blockage of any river or stream;
    ii. The passage of fish being impeded;
    iii. The destruction of any significant habitat for native fish in a waterway;
    iv. Flooding or erosion.
e. Ensure that the installation of in river structures, or structures in the beds or banks of the river are implemented under the supervision of persons with appropriate experience in the supervision of in river civil engineering construction works.

72. The concession holder shall ensure that all in-river construction works are timed so as to occur during the summer months (November – March) where practicable.

73. During in river works the concession holder shall monitor water clarity using a seechi disk at one site upstream and at least one site downstream of the working area. The concession holder shall undertake water clarity measurements before, during and after the in river works and shall ensure that during and for a period of 24 hours after any in river works there is no conspicuous change in water clarity (greater than 50%) between the sites upstream and downstream of the working area. This shall not apply in times of fresh or flood.

74. The concession holder shall prepare a report to the Department of Conservation on a not less than six monthly basis detailing the in river monitoring and any management that was undertaken during the construction period in accordance with conditions 71 to 73.

Fire

75. The concession holder shall ensure that an appropriate Fire Contingency Plan is in place at all times during the construction of the monorail. In the event of a fire the measures outlined in the Fire Contingency Plan shall be strictly adhered to.

Terrestrial Ecology

76. The concession holder shall ensure that the following applies as outlined in the Terrestrial Ecology Management Plan prepared in accordance with condition 13:

    a. The construction route is to be clearly marked;

b. To the extent practicable no host plants of the threatened mistletoe *Alepis flavida* are removed during construction; and
c. With respect to maintenance of a clear route preference be given to the removal of dead trees, those which are obviously moribund, small trees and those which are leaning over the route or have limbs leaning over the route in that order.

77. The concession holder shall ensure that all machinery and equipment is cleaned prior to being brought on to the site.

78. The concession holder shall establish a vehicle wash station at each construction depot and all vehicles or machinery entering the site shall be required to wash the tyres, undercarriage and any parts that may contain soil or vegetation.

79. The concession holder shall ensure that any other material, including gravel that is brought on to the site is free of seeds or pieces of vegetation.

Onsite Predator and Weed Control

80. The concession holder shall ensure that any monitoring and / or onsite weed or predator control required by conditions 36 and 38 and outlined in the Predator and Weed Control Management Plan shall follow current best practice as agreed with the Department of Conservation.

81. The concession holder shall ensure that monthly vegetation monitoring is undertaken during construction of any section of the monorail to detect weeds along the route. If weeds are detected they shall be managed using manual removal or judicious application of herbicide or other suitable methods. The frequency of this monitoring shall be reduced to six monthly (in spring and in autumn) after construction of each section of monorail is completed. The target for weed presence is 0% in any forested area and less than 20% cover in any non-forested area (tussock grassland). The results of any monitoring undertaken in accordance with this condition shall be supplied to the Department of Conservation within one month of completion.

82. The concession holder shall ensure that the extent of earthworks is staged, so as to limit the amount of bare soil that can be easily colonised by weeds, particularly in riparian areas and tussock grasslands and during spring and summer.

83. The concession holder shall ensure that any areas of bare soil are planted and / or seeded with species sourced from the local area as soon as practicable after works are completed to restore a vegetation cover.

84. The concession holder shall monitor any rehabilitated areas approximately one month after rehabilitation of any section is complete. The purpose of this monitoring survey shall be to identify what further rehabilitation might be required such as increased planting or weed control. Additional surveys shall be undertaken approximately three months after the initial one month survey.

Thereafter six monthly surveys will be required until the native vegetation cover has reached more than 70% cover in grassland areas and more than 95% cover in forested areas. The results of any survey undertaken in accordance with this condition shall be supplied to the Department within one month of completion.

85. The concession holder shall monitor pest mammals on a seasonal basis (i.e. four times per year) during construction as follows:

a. Along the entirety of the route during construction;
b. In the predator control areas identified in accordance with conditions 38 to 40; and
c. In experimental control sites to be established in similar habitat near the route.

Off Site Predator Control Programme

86. The concession holder shall implement a predator control programme in a 200 ha area of the Eglinton Valley in the vicinity of Boyd Creek in accordance with the Predator and Weed Control Management Plan required by condition 36. The purpose of the predator control programme shall be to protect local populations and offset for the removal of approximately 22 ha of beech forest habitat along the route. The predator control programme may include but not be limited to:

a. Identification of pest species to be controlled;
b. Methods to reduce pest numbers, including duration, location, type and frequency of trapping or other forms of control; and
c. Monitoring of species targeted by the programme and other species expected to benefit (outcome monitoring).

Forest Management Plan

87. The concession holder shall ensure that the following methods are implemented as outlined in the Forest Management Plan prepared in accordance with condition 31:

a. Marking of a 3m wide horizontal alignment of the construction track and spur tracks on the ground shall be undertaken, providing at least 10m horizontal clearance from any large trees where practicable so as to protect their roots;
b. Marking of the vertical height of the construction track;
c. Construction of the track providing at least 50mm of granular metal base, with a deeper base used in areas with a soft or wet substrate;
d. Marking of a 6m wide horizontal alignment and vertical alignment for the monorail on the ground, allowing for any temporary cut and batters or sediment control as may be required;
e. Removal of leaf litter and any soil and stockpile for rehabilitation purposes;
f. Monitoring of plant health and weed control; and

g. Management of any vegetation adversely affected by construction activities if required.

88. The concession holder shall ensure as far as is practicable that trees are only removed within the clearly marked tracks in accordance with condition 87. The concession holder shall be required to recorded daily any instances when a tree falls outside the construction footprint identified in condition 87. If more than 10% of tree fall occurs outside the clearance footprint then the following action will be taken:

a. Cease work immediately and contact the Project Manager and the Independent Project Advisor who will notify the Department of Conservation;
b. Advise the circumstances as to why the trigger has been breached and the measures in place to avoid a repeat; and
c. Agree as to the appropriate actions to be taken and re-commence construction activity on that basis.

89. The concession holder shall monitor the health of the vegetation along the route and in one similar control site. The monitoring sites shall be consistent with those used in the baseline vegetation health survey undertaken in accordance with condition 33. This survey shall be undertaken once every three months during construction of the route and shall consist of:

a. Species composition;
b. Cover abundance in all tiers of vegetation;
c. Plant condition considering leaf colour, wilt, and physical dieback of plants (or parts of plants; and
d. Weed presence.

90. The results of this survey shall be compared to the baseline survey undertaken in accordance with condition 35 to determine the state and health of the vegetation within the construction footprint. The results of this survey and evaluation shall be prepared in report format and submitted to the Department of Conservation as soon as practicable.

91. The report prepared in accordance with condition 90 shall identify if any of the following indicator triggers have been reached within the construction footprint, when compared to the baseline survey and control site:

a. Obvious dieback in the canopy along the route, or within 10m either side of the alignment;
b. A reduction in average canopy cover of more than 10% along the alignment, or within 10m either side of the alignment for more than 100m in one location or for more than 3km along the entire route length after vegetation clearance and construction is complete;
c. More than 10% mortality of understorey species along the alignment or within 10m either side of the alignment for more than 100m in one location, or for more than 3km along the entire route length; and

d. Discolouration and/or wilting of leaves in more than 10% of the plants along the alignment or within 10m either side of the alignment for more than 100m in one location, or for more than 3km along the entire route length.

92. If any of the above trigger indicators have been reached then the concession holder shall, subject to the approval of the Department of Conservation, implement one or more of the contingency actions contained within the Forest Management Plan prepared in accordance with condition 31.

93. The concession holder shall ensure that all vegetation removed during the construction of the route is disposed of in accordance with the approved method or methods outlined in the Forest Management Plan.

PART FOUR: OPERATIONS AND ENVIRONMENTAL MANAGEMENT

94. The concession holder shall implement and adhere to the requirements of the Operations and Environmental Management Plan required by conditions 43 and 44 post construction of the monorail and associated facilities.

95. The Operations and Environmental Management Plan shall be updated by the concession holder, as necessary, in consultation the Department of Conservation. The Department of Conservation shall advise the concession holder of its requirement to update the Operational and Environmental Management Plan in writing. Such a request may not occur more frequently than once per calendar year. Each updated version of the Operational and Environmental Management Plan shall be submitted to the Department of Conservation and held at the site office.

Recreation

96. The concession holder shall ensure that signage is installed at appropriate locations within the site, as agreed with the Department of Conservation. The signage shall consist of, but not be limited to:

    a. The presence of the monorail in the area;
    b. The location and difficulty of tramping routes, location of huts and other recreational facilities for trampers and cyclists along the route; and
    c. Educational material regarding the native vegetation occurring nearby to increase awareness and promote its protection.

97. The concession holder shall ensure that the revised tramping options in and around the area are advertised via an appropriate medium.

98. The concession holder shall liaise with representatives of the Department of Conservation, New Zealand Deer Stalkers Association and any other local hunting service providers about the monorail and mountain bike route in relation to gun safety.

Noise

99. The concession holder shall ensure that the monorail system does not exceed a noise level that exceeds 70dBA L_{max} and 80dBA SEL from one train as measured at a distance of 50 metres. There shall be no noticeable thumps from track joints.

Terrestrial Vegetation

100. The concession holder shall survey any rehabilitated areas approximately one month after rehabilitation of that section is complete. The purpose of this survey shall be to identify which plants have survived the planting or transfer process and what further rehabilitation might be required such as increased planting or weed control. Additional surveys shall be undertaken approximately three months after the initial one month survey. Thereafter six monthly surveys will be required until the native vegetation cover has reached more than 70% cover in

grassland areas and more than 95% cover in forested area. The results of any survey undertaken in accordance with this condition shall be supplied to the Department within one month of completion.

101. The concession holder shall on an annual basis walk the route in conjunction with Department of Conservation to identify any trees that pose a risk to either operation of the monorail or wildlife living nearby if they were to fall. Any trees thus identified will either be trimmed, or removed from the monorail route, or left to lie, depending on location and topography of the area and the opinion of the parties involved.

Predator and Weed Control Management Plan

102. The concession holder shall continue to implement both the onsite and offsite predator control as required by the Plan in accordance with conditions 36 and 37. The concession holder shall also undertake monitoring of the area to ensure both the onsite and offsite predator control is being effective. Monitoring results shall be submitted to the Department of Conservation annually on the anniversary of the granting of any concession.

103. The concession holder shall ensure that monthly monitoring is undertaken after construction of each section of the monorail track to detect weeds. If weeds are detected they shall be managed by weed control using manual removal or judicious application of herbicide or other appropriate methods. The frequency of this monitoring shall be reduced to six monthly (in spring and in autumn) after construction of each section of monorail is completed. The target for weed presence is 0% in any forested area and less than 20% cover in any non-forested area (tussock grassland). The results of any monitoring undertaken in accordance with this condition shall be supplied to the Department of Conservation within one month of completion.

104. The concession holder shall monitor pest mammals annually during spring or summer along the entirety of the route after construction of the monorail track is completed. The purpose of the monitoring shall be to determine whether the monorail route is being used as an access route by introduced pests and whether any predator control measures established along the route are effective. Control monitoring sites will be established in similar habitat near the route where pest control is not being implemented, to determine whether the works have lead to an increase in predators in the area, and whether any additional mitigation is required. The results of any monitoring undertaken with respect to pest mammals shall be supplied to the Department of Conservation.

Forest Management Plan

105. The concession holder shall monitor the health of the vegetation along the route and in one similar control site, the monitoring sites shall be consistent with those used in the baseline vegetation health survey undertaken in accordance with condition 33. This survey shall be undertaken annually for a period of two years post construction of the length of the monorail route and consist of:

    a. Species composition;

b. Cover abundance in all tiers of vegetation; and
c. Plant condition considering leaf colour, wilt, and physical dieback of plants (or parts of plants.

106. The results of this survey shall be compared to the baseline survey undertaken in accordance with condition 33 to determine the state and health of the vegetation within the construction footprint. The results of this survey and evaluation shall be prepared in report format and submitted to the Department of Conservation.

107. The report prepared in accordance with condition 106 shall identify if any one or more of the following indicator triggers have been reached within the construction footprint, when compared to the baseline survey and control site:

a. Obvious dieback in the canopy along the route, or within 10m either side of the alignment;
b. A reduction in average canopy cover of more than 10% along the alignment, or within 10m either side of the alignment for more than 100m in one location or for more than 3km along the entire route length after vegetation clearance and construction is complete;
c. More than 10% mortality of understorey species along the alignment or within 10m either side of the alignment for more than 100m in one location, or for more than 3km along the entire route length; and
d. Discolouration and/or wilting of leaves in more than 10% of the plants along the alignment or within 10m either side of the alignment for more than 100m in one location, or for more than 3km along the entire route length.

108. If any of the above trigger indicators have been reached then the concession holder shall, subject to the approval of the Department of Conservation, implement one or more of the contingency actions contained within the Forest Management Plan prepared in accordance with condition 31.

Didymo

109. After construction of the monorail the concession holder shall undertake a survey of all streams and waterways which cross the route. The purpose of this survey shall be to determine whether the measures implemented during the construction of the route to prevent didymo spreading have been successful. If the presence of didymo is confirmed, in areas where it was previously not found, then the concession holder shall develop a response plan in accordance with best practice set by Biosecurity of New Zealand and in consultation with the Department of Conservation. The measures in the response plan shall be implemented by the concession holder to manage the spread of didymo into surrounding unaffected waterways.