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Event:	Mount Messenger Bypass Hearing	
Date:	8 August 2018 (Day Four)	
Before:	Mr S Daysh	- Hearings Commissioner
Witnesses:	Ms S Ongley	- Department of Conservation
	Dr R Burns	- DOC: Avifauna
	Mr E Edwards	- DOC: Invertebrates
	Dr C O'Donnell	- DOC: Bats
	Mr R Duirs	- DOC: Erosion and sediment control
	Dr T Drinan	- DOC: Freshwater ecology
	Dr L Barea	- DOC: Biodiversity offsets and effects management
	Mr B Inger	- DOC: Planning
	Mr T Cloke	- Western Central District Road Carriers
	Mr J Hickman	- JD Hickman
	Mr D Rogers	- TIL
Also present:	Mr D Allen	- Solicitor for NZTA
	Mr T Ryan	- Solicitor for NZTA
	Mr P McKay	- Hearing manager
	Ms R McBeth	- Reporting officer, New Plymouth District Council
	Ms K Hooper	- Reporting officer, Taranaki Regional Council
	Mr J Winchester	- Advisor

THE COMMISSIONER: Kia ora tātou. Thank you very much. Welcome back to the hearing. I think that most people here were here the day we opened last week so I do not intend to go through the preliminaries about the hearing. We are into this middle phase with hearing evidence on behalf of people that made submissions on the proposal and this morning we are scheduled to hear from the Department of Conservation so welcome Ms Ongley.

MS ONGLEY: Thank you, sir.

THE COMMISSIONER: Mr Allen, in terms of progress on conditions and documents since we were here last week, I have received through the council an update on some conditions and an updated ELMP. I have to signal I have been on the road this week so I have not had a chance to download those and read those fulsomely today so until, I have got a copy here today, so we will be reading them through the day as we hear from various witnesses. Are there any other updates from you, Mr Allen?

MR ALLEN: Sir, just one particular update. In terms of the ELMP I have handed up this morning and around and there are copies on the table at the back if anyone needs more, just a correction to the Lizard Management Plan or the Herpetofauna Management Plan, protocol D and that corrects pages 77 and 78 of

the ELMP. You might just want to write on the top pages 77 to 78 and the type available we forgot to reference that. That is the correction to the version circulated on Monday and that is the only correction.

In terms of the wording in the ELMP and making it certain for a final version, some of that has occurred but Mr Ryan and myself will have a look through it later this week and the substance is now there. We will review it in terms of making sure that it reflects that it would be a final ELMP should the designation and consents be granted. Some of that wording has changed I have noticed but not all of it. You picked up a few comments about making sure it is certain in terms of its wording.

THE COMMISSIONER: Yes, thank you.

MR ALLEN: That is the latest with that. In terms of the conditions, there was a meeting this morning with the council planners and I understand there is another meeting set for Friday this week and then I understand this morning we will get comments on the conditions from DOC as well so we will be able to factor all of those in and next week there will be another iteration of the conditions.

MS ONGLEY: I would like to comment on that.

THE COMMISSIONER: Sure.

MS ONGLEY: We have got the ELMP and we have got the conditions. DOC received both of those pieces of information at around 5.00 pm on Monday. A lot of our witnesses were travelling; it seems that you were too, sir, yesterday so obviously we will not be able to provide full copies on those in our presentation today.

We could have provided comments on the conditions that were distributed earlier but I considered that then you would have a redline version of some out of date conditions. What I am proposing to do and I did flag this last week is now we have received the more up to date conditions from NZTA on Monday, I am proposing that we come back next week with comments on those so that you do not have redlining on an out of date set of conditions.

THE COMMISSIONER: Yes, that would certainly be of benefit to me. I am also very aware that around the ecology conditions and the ELMP the council's advisors have also made some comments about conditions so there are three parties really contributing

to conditions updates and, Ms McBeth and Ms Hooper, I wonder is there a process where is it in your court to co-ordinate the updates or the applicants? How do you propose we get everyone's final input into those so I do get a final full best set before the hearing closes?

FEMALE SPEAKER: I would suggest after our discussions this week that we have the NZTA's final set they are happy with them and perhaps have columns that we could add some comments to.

THE COMMISSIONER: Yes. What I am thinking is that there are helpful suggestions on conditions from both the council side and the Department of Conservation side. Sometimes what I am meaning is that they are agreed or agreed in part and what would be helpful to me would be a set of conditions where if there were different suggestions for me to consider because ultimately I am going to have to decide (a) is this going to be granted, and (b) on terms and what conditions.

It is very difficult for me to be trolling through different versions of evidence that have been moving so I really would implore the parties to give me a version that NZTA has finalised and I really would like the NZTA to really seriously consider the suggestions that have been put forward in terms of

its final position because I think there is merit in some of those and then perhaps on the other side there is some sort of column or table where there is disagreement and suggested additional or alternative condition wording. That would be very helpful. If the parties could discuss that and work together on that I think that would be, as I say, very, very helpful to me so thank you for that.

Would we, Mr Allen, be expecting I think we are convening again, we have got the hearing today and some time tomorrow and then we are back on 16 August for the day.

MR ALLEN: Back on the 16th, next Thursday. We have not talked to Ms Ongley but in terms of timing if we could get comments from DOC maybe close of play Friday on the conditions this week we can then incorporate those in a tabular form as you suggest with our conditions set, where there is disagreement you can then see, the council can drop in their provisions as well so it could be three columns. So close of play Friday?

MS ONGLEY: I am not sure if that is going to be achievable because Mr Barea is away. I can say close of play Monday. I mean, we have had the revised conditions quite late.

THE COMMISSIONER: Yes.

MR ALLEN: Sir, in response to that, there are changes in the revised conditions but they are not that substantive compared to the version attached to the supplementary evidence and we have been in discussions with DOC on the conditions for many months and we have yet to receive any comments from DOC in terms of the conditions. It is just we do need something from DOC in order to be able to respond.

THE COMMISSIONER: Mr Allen, I think there are commentary through evidence from DOC on various conditions. I do not think it is quite fair to say you have had no feedback but are you talking about --

MR ALLEN: No drafting.

THE COMMISSIONER: Drafting on conditions itself. Ms Ongley?

MS ONGLEY: Can I talk at morning tea break or it will be the lunch break I suppose and come back to you on that?

THE COMMISSIONER: I suggest you confer over the lunch break and come back to me when we reconvene after lunch and we can finalise a plan. Thank you.

MS ONGLEY: So that is the conditions. The ELMP at this stage DOC is saying that, although it might be a very good idea to have that finalised through the steering process, it does not think that it is at a stage that it can be finalised because that is such a large document and DOC does not feel that it has had sufficient time to look through all the revisions to that either. But I think that some of the issues in relation to that might become clear as we go through DOC's evidence today.

THE COMMISSIONER: Yes. Is that helping in terms of people hearing? Sorry, there was a switch on my thing here that someone had turned off. Thank for alerting us to that.

MS ONGLEY: On another matter I just wanted to bring your attention to, and I am sure everybody got it, but the memorandum that came through from Ms Tolleman from the Royal Forest and Bird Protection Society.

THE COMMISSIONER: Yes.

MS ONGLEY: I just wanted to bring it to your attention. I have been in touch with her and so Forest and Bird is saying that they do not want to duplicate the work of the department but they maintain the position in their submission and adopt the evidence of the department.

THE COMMISSIONER: So, that came in last week I think and --

MS ONGLEY: I have got a copy if you want one.

THE COMMISSIONER: Yes, I would like the hearing manager to actually read that out formally so would that be a good time to read that into the record?

MS ONGLEY: Yes, it might be a good time.

THE COMMISSIONER: Perhaps if you could hand that up, Ms Ongley? Just so everyone is aware, Forest and Bird are a submitter and they did request some hearing time but we have had a statement from their counsel and I would ask that Mr McKay actually reads that out so we can actually record that that has been before us formally. Thank you.

MR MCKAY: Thank you, Commissioner:

"Memorandum of counsel on behalf of the Royal Forest and Bird Society of New Zealand. The Royal Forest and Bird Society of New Zealand Incorporated made a submission on the Mount Messenger Bypass Project resource consent application and notice of requirement. That submission sought that the consent applications and notice of requirement be declined. Forest and Bird raised several issues in its submission that were of concern. These related to:

(a) the effects of the bypass project in relation to the provisions of the New Plymouth District Plan,

(b) the adequacy of the assessment of effects in relation to freshwater ecology,

(c) the adverse effects on streams that include very high biodiversity values,

(d) the potential adverse effects on bats,

(e) the adequacy of the offset mitigation; and

(f) that the proposed conditions did not include clear, direct, detailed and enforceable conditions that could ensure that the mitigation and offset package would be implemented, rather the proposed conditions could be met by simply drafting management plans.

The Department of Conservation is presenting evidence on all of the above topics. It appears that the Department of Conservation retains serious concerns about the ecological effects of the bypass project and the adequacy of the mitigation and offset proposal. We also note that the ecological review at appendix F3 to the New Plymouth District Council planning officer's report raises several serious concerns along similar lines.

Forest and Bird has had constructive discussions with Peter Roan for the New Zealand Transport Agency regarding the draft conditions, in particular the enforceability of the conditions and how they relate to the environmental management plans. However, given the comprehensive nature of the DOC evidence these issues appear to have been superseded by that evidence. In these circumstances Forest and Bird does not wish to duplicate the work of the

> Department of Conservation. Forest and Bird therefore maintains the position in our submission and adopts the evidence presented for the Department of Conservation. Forest and Bird will not attend the hearing. Dated 25 July 2018, Erica Tolleman, counsel for Royal Forest and Bird Protection Society New Zealand Incorporated."

THE COMMISSIONER: Thank you, Mr McKay. Ms Ongley, I think we are in your hands.

MS ONGLEY: Thank you, sir. Just to note that the person sitting next to me is Mr Inger, a planning witness.

THE COMMISSIONER: Hello, Mr Inger.

MS ONGLEY: I am aware we are under some time constraints and that I understand that you have read my submissions so I do not intend to read them but rather to go through each section and bring out some key points and then I am happy for you, sir, to ask me questions as we go through. Would that be acceptable?

THE COMMISSIONER: Sure, that would be fine, thanks.

MS ONGLEY: I understood that copies have been on the website but it appears that I have neglected … I have a case book as well. Has that been handed up?

THE COMMISSIONER: No, it has not so Mr McKay can come and grab that, thank you.

MS ONGLEY: The first part of the submission sets out the consultation and the engagement that the department has had with NZTA and full consultation occurred on 8 August 2017 where a team from DOC was taken by NZTA to the site and the main discussion there was on the two remaining route options and I think it is stated in DOC's submission itself that DOC has said that the preference between those two options, one was route E1 and one was route P1 was the route E1 and that is the one subsequently been chosen.

Following the engagement which has included voluntary conferencing between DOC experts and NZTA experts, DOC's current position it seems to be similar to that stated by Wildlands in its advice to NPDC and that is stated at paragraph 5 of my submissions. I will not read the whole quote from Wildlands but would like to read the last part which is just above my heading "The Law" and just part way through that, the last paragraph from Wildlands, the second to last sentence:

> "The management of long-tailed bats for this project must adequately address direct mortality through felling of roosts and possible vehicle strike and mitigate the habitat

> loss, the habitat fragmentation and roost loss through extensive pest management of appropriate scale and timing and appropriate road design e.g. lighting requirements. The application as it stands is likely to have significant adverse effects on long-tailed bats."

In relation to the law the main --

THE COMMISSIONER: I do have a question about that introduction and I will probably give you some questions as we go through. The MOU that DOC has with the New Zealand Transport Agency I am intrigued by that and I think I would like to know a little bit more about that. Is that as two Government agencies contain objectives to work together and resolve issues or it is more of an engagement type of MOU?

MS ONGLEY: My understanding is that it is both. It is actually noted on the NZTA website and it specifically related to, and I will have to be a bit careful here because it is not actually evidence but since you have asked, it is specifically related to how the two agencies engage in Resource Management Act processes and I think it is considered that if there is meaningful early engagement that it is more likely that these issues are going to be resolved before the matter comes to a hearing and that has been attempted here.

THE COMMISSIONER: Yes. All right, thank you for that.

MS ONGLEY: So, the law, the main point there, as you are no doubt aware, sir, is that the law is currently in a state of flux and I set out a very useful quote from a recent case City Rail Link which I think well encapsulates the current state of the law. Would you like me to read that, sir, or will you read that at your leisure?

THE COMMISSIONER: I think I would like you to read that because if that is a case that you think is right on point you have got to take me through that, thank you.

MS ONGLEY: Certainly:

> "All consideration under section 171 is as noted subject to Part 2. The longstanding judicial approach to an overall oral judgment approach to assessing applications for resource consent against Part 2 was as it is well known rejected for at least some purposes by the decision of the Supreme Court in King Salmon. There have been subsequent decisions exhibiting some uncertainty about the application of that finding particularly in relation to notices of requirements and also in relation to resource consenting.
>
> The Board of Inquiry concerning the Pūhoi to Warkworth Road of national significance held that there remains a need to carry out an overall balancing test and questions the widespread ability of the environmental bottom lines approach to the New Zealand coastal policy statement and that is referring to the final report of that Board of Inquiry.

> The High Court in Willis, colloquially known as the Basin Bridge decision, also distinguished King Salmon on the basis that section 171 provides for specific statutory authority to consider Part 2 which is different from the statutory wording in the plan change context and the High Court held King Salmon did not change the import of Part 2 for the consideration under section 171(1) of the effects on the environment on a requirement.
>
> So question marks remain however because of the decision of the Environment Court upheld in the High Court in R J Davidson. The later decision concerned a resource consent application measured against section 104. We are aware that the Davidson decision has recently been the subject of a hearing in the Court of Appeal and a reserved decision is awaited. We hold that the debate is perhaps fortunately academic in the present case we considered a Part 2 analysis would be satisfied in this case on the evidence before us."

THE COMMISSIONER: Ms Ongley, even though Davidson was a resource consent application is its applicability likely to cover matters of requirement as well do you think?

MS ONGLEY: I think that is the million dollar question, sir. I think that we may have some clarification on that when the Court of Appeal decision on Davidson comes out but on the current state of the law I think the preferred approach amongst many is that the Basin Bridge decision because that was a High Court decision on a notice of requirement should be preferred.

But my position is that in Basin Bridge it was held that the provisions of King Salmon relating to having to refer to the planning documents and not being about to return to Part 2 that

may hold. However, there is other discussion in King Salmon that relates to your actual interpretation of Part 2 so in other words King Salmon had two main findings; the first was you have to refer to the planning documents and you cannot revert back to Part 2 but the second was, what is the accurate interpretation of Part 2 itself and my position is that that second part which is how we interpret Part 2 flows through for notices of requirement and I go through further in my submissions to talk about what King Salmon said about that.

THE COMMISSIONER: All right, thank you.

MS ONGLEY: Paragraph 7, Mr Inger has waived the proposal against the planning documents in Part 2 of the Act. He reaches the same conclusion following application of both approaches so I now comment on each approach.

The next section I comment on the approach of the planning documents and whether there is the legality, uncertainty or incompleteness in the planning documents and I will just verbally summarise what I have said there. There is one clearly identifiable deficiency in the New Plymouth District Plan and that is the list was scheduled SNAs because the Environment Court has in a declaration decision said that the list of SNAs

in the district plan is deficient. I was involved in that case so I am happy to talk about it further.

That is the deficiency in the New Plymouth District Plan but my position is that the objectives and policies in the plan are not deficient and that if something does meet the criteria in the district plan of a SNA, then it should be viewed as a SNA for the purposes of those objectives and policies even if it is not actually listed. I have set out in paragraph 10 the Environment Court's declaration on the inadequacy of the list in the district plan and I have also said that that particularly relates to the Pascoe land because the district plan takes the approach of identifying SNAs on private land rather than public land. Do you have any questions on that?

THE COMMISSIONER: No, I actually followed that case reasonably closely so I understand the background to that but are you going to address 13 and 14 as well or is that ...

MS ONGLEY: Paragraphs 13 and 14?

THE COMMISSIONER: Yes. My understanding is that section 6C is in play in terms of decision making. There is no argument about

that between the experts or the parties. Is that your understanding too?

MS ONGLEY: That was my understanding but I covered it in some detail because I heard Mr Allen say in opening submissions that this was not a SNA and I think he meant this is not a SNA listed in the district plan.

THE COMMISSIONER: Yes, all right but section 6C in your submission is relevant definitely for decision making given the evidence?

MS ONGLEY: Absolutely, yes.

THE COMMISSIONER: Thank you.

MS ONGLEY: Page 5 I have set out there and Mr Inger's evidence and speaking notes will go into this a bit further but I have set out there what I consider to be the main provisions from both the district plan and the regional policy statement relating to SNAs.

THE COMMISSIONER: Yes, thank you.

MS ONGLEY: Paragraph 16, consistent with these provisions NZTA has set out an objective for the project of no net loss in 10 years and a net gain for biodiversity in 15 years. I am saying that that aim is consistent with the policy provisions. Under the heading Part 2 I go into this issue of what did King Salmon say about the interpretation of Part 2 so through its day today the applicant appears to accept that the Act no longer supports a trade-off or a compromise. In King Salmon although the court did not describe sections 5(2)(a) to (c) as bottom lines, the court clearly disagreed with the rather simplistic analysis that the first part of section 5 should be viewed as pro development and the second part as pro environment and the "while" in section 5 was considered to mean at the same time as.

THE COMMISSIONER: Thank you.

MS ONGLEY: In the recent case of Clearwater Mussels the Environment Court declined to re-consent mussel farms where it was found there would be unavoidable effects on king shag habitat and a lack of evidence that a proposed offset would offer sufficient benefits for that bird. The provisions of the NZCPS in the sales plan were relevant as well as section 6C. I was not proposing to read this.

THE COMMISSIONER: No, that is fine, thank you.

MS ONGLEY: What I would like to draw your attention to, I have underlined the relevant findings, but subparagraph (f) states:

> "On the basis of those findings we also find that granting a coastal permit would not recognise and provide for the matters under section 6C [and then it says] conversely a decision to decline the permit would recognise and provide for those matters to some extent."

The next paragraph in my submissions is stating that in that case it was a decision to roll over the consent which was the marine farms so you could say in such a case that declining consents might recognise and provide for section 6C because the status quo is the marine farms in place. You cannot say that here because we are not rolling over an existing activity so at paragraph 20 I say because the case here does not involve re-consenting a current activity it could never be said that a decline in consents or recommendation to withdraw the MLR will provide ecological benefits. A decline would roll over the status quo but we could be more certain that on the basis of the evidence constructing a road is likely to increase current rates of decline of threatened species, have significant adverse effects and as a corollary could reduce opportunities for species recovery efforts now and in the future.

THE COMMISSIONER: Ms Ongley, this is the heart of the evidence around ecology, is it not? The applicant is saying to me that with the PMA in place and the stream restoration programmes and the other safeguards in the ELMP there will be a net benefit to biodiversity in the environment and I think the department is saying that that has not met that test of -- the applicant's position is that there will be environmental benefit, I think your position is with some species and particularly bats the proposal will continue to decline in that species in this area. That is the nub of the position and I think you are trying to distinguish the case law around that position?

MS ONGLEY: Yes, I am. I am anticipating an argument and I do not know whether Mr Allen will run it or not that you have to be certain that to decline the permits would also recognise and provide for section 6C. I mean, declining the permits here is simply going to roll over the status quo. There may be some deficiencies with how these various tracts of land are managed at the moment but there are opportunities for species recovery at the moment and I think that argument ignores the fact that the designation and the road we can be more certain that that would have adverse effects than simply letting the status quo continue.

THE COMMISSIONER: Even though the status quo continuing is seeing a decline in some species, that is the point, is it not?

MS ONGLEY: Yes, that is right, yes, and that is the position of the witnesses for DOC that particularly, as you say because of bats and because of the potentially significant adverse effects on bats, unfortunately we do not know the extent of those adverse effects because the radio tracking studies have not been undertaken but they are potentially significant. My witnesses are clearly saying that that is more significant than letting the status quo roll over.

THE COMMISSIONER: All right, thank you.

MS ONGLEY: When effects on section 6C values cannot be avoided. So a decision to decline or recommend withdrawal is not the only option for activities where adverse effects cannot be avoided or mitigated. Other options include adaptive management and offsetting and compensation and the primary approach here is offsetting and compensation. The Act now makes it explicit that offsets or compensation are to be considered but must be proposed or agreed to by the requiring authority and by providing for both offsets or compensation the law recognises

the distinction and understanding that offsetting and compensation may not be the same thing.

These provisions do in some way restate the case law including the Buller Coal case where the High Court said that the most important aspect of this judgment is the view of this court that the RMA keep separate the relevant consideration of mitigation of adverse effects caused by the activity for which resource consent is being sought from the relevant consideration of the positive effects offered by the applicant as offsets to adverse effects caused by the proposed activity.

In that case Forest and Bird wanted a clear finding that mitigation considerations should get a greater weight than offsetting considerations. The Court did not make that finding and stated it all depends on the context including the degree of mitigation and the scale and quantities of the offset. In a recent case under the Reserves Act it was found that the word protection may even include the offsetting component and I will not read that. That was under the Reserves Act.

THE COMMISSIONER: Can you tell me the context to that case and its relevance, you know, it was a Reserves Act provision? Are you saying it has got some sort of guidance in this case?

MS ONGLEY: Possibly but I do not think that we can transfer that interpretation under the Reserves Act straight into the RMA context so I think that it is preferable under the RMA to look at the explicit provision that has now been inserted relating to offsets and compensation rather than deal with it as something that should come under the word protection.

THE COMMISSIONER: All right, okay, now I understand your point. Thank you.

MS ONGLEY: The applicant has proposed a combination of offset and compensation for the effects that cannot be avoided or adequately mitigated. DOC accepts that approach here subject to the following comments. DOC is essentially agreeing to the offsetting compensation approach, it is just the adequacy.

THE COMMISSIONER: That is right so we are down to the level of offsetting and compensation not the approach. That is very clear to me from the evidence.

MS ONGLEY: Sir, I am aware of the time constraints set. I have set out here some parts of reference from the ELMP which had the offsetting guidance. I am not sure if you want me to read

through that. There seems to be quite a lot of commonality between Dr Barea and Mr MacGibbon.

THE COMMISSIONER: Yes, look I have read through your submissions here, Ms Ongley, and you use a term that whether something is defined as an offset or a compensation is largely sort of academic and it seems Mr MacGibbon seems to accept that in his position as well so I do not think you need to take me through all that offsetting versus compensation discussion. We are talking about looking for environmental benefits and whether this find is offset or compensation, I think it is quite difficult to really define exactly. The department's position is that it would prefer for these benefits to be seen and claimed as compensation rather than part of them offset and I understand that position.

MS ONGLEY: Yes, that is right. I would just like to make one comment there. One of the key reasons for that is that Dr Barea considers that the no net loss terminology that is so central to offsetting should not be used where it has not been demonstrated because it is a gold standard approach if you like. If you have not actually met the no net loss test you should not be using that phrase.

THE COMMISSIONER: Yes, and is that still used in the ELMP? Is that the problem? I know it has been used in evidence describing the situation with various species but I suppose we just have to have a check through the ELMP and the conditions if that was a concern.

MS ONGLEY: That is a problem. I think possibly more of a problem would be if you, sir, made a decision on the basis that, I mean whether it is to be granted or not, on the basis that no net loss was achieved across all these different variables. The department has concern about the potential precedent effect of using that phrase where it has not been demonstrated across all those different areas of fauna and possibly even some parts of Mr Singers's model as well. So, that is my understanding that is the main concern there.

THE COMMISSIONER: All right, thank you. Where are we picking up then in terms of your submissions?

MS ONGLEY: I will pick up under the heading "Compensation". Even with compensation one must have confidence in the outcome and so a robust analysis is also required. I suggest it is largely irrelevant whether the pest management area imposed would be within the top 20 per cent by area of sanctuaries in

the North Island or that none of the large-scale projects I have provided that evidence on, and this from Mr Chapman, or any other large-scale projects I am aware of have provided much in the way of mitigation/compensation for effects on bats other than standard VRP and monitoring and I note that these comments refer to NZTA projects that occurred prior to the finalisation of the NZTA bat framework.

DOC agrees it is not necessary for an applicant to provide compensation or mitigation that would provide going beyond the effects of the project and I cite there a case there including Newbury and that is not what DOC suggests. Mr Chapman says that although his recommendation to the project team was to carry out further attempts to track and radio track, the project team decided to focus instead on addressing uncertainty by increasing the size of the PMA to benefit bats and relying more on the vegetation removal protocols. Mr MacGibbon has clarified that the size of the PMA was finalised on the basis of addressing effects on bats and in particular its reading of the Eglinton Valley Study. That showed 3,350 hectares is sufficient to provide protection for bats. DOC request a minimum controlled area of 5,000 hectares.

In his opening Mr Allen stated Dr O'Donnell presents no signs to justify this additional area. Rather he considers it a pragmatic minimum when breeding trees have not been identified. Dr O'Donnell is co-author of the Eglinton Valley Study. He presents a great deal of science to justify the additional area. He says the fact that a survival rate of over 80 per cent per annum for most colonies was achieved at Eglinton Valley when control was increased to 3,350 hectares and that only occurred when predator control was specifically focused on known roosts indicating that the area of control would need to be larger to provide sufficient confidence for the roosts to not know. That is the main point, sir, where roosts are not known. You cannot simply rely on the 3,350 from the Edmonton Valley study. The applicant appears to have misread the import of the Edmonton Valley study.

THE COMMISSIONER: Dr O'Donnell is here today, is he not, so I can ask him some questions about that?

MS ONGLEY: Yes. Just because Dr O'Donnell is here today I have set out what I consider to be key parts from his evidence, and it is up to paragraph 42.

THE COMMISSIONER: Yes, but ultimately Dr O'Donnell has provided his 5,000 hectares based on his experience and professional judgement; and Mr Chapman has given us a different number based on his experience and judgement. There is some different there.

MS ONGLEY: Yes, so ultimately it is a matter of weighing up that evidence and the bearing ...

THE COMMISSIONER: That is right; I understand that.

MS ONGLEY: Yes, so paragraph 42. It is acknowledged that there is no one study which provides a magic number so that we can have confidence that gains will be achieved for the New Zealand long-tailed bat. Dr O'Donnell has relied on all of the above and on his work with bats in New Zealand for over 25 years. His evidence, based on the studies cited and his extensive experience, is that the adverse effects on the project are likely to be very high for bats unless mitigation is significant. In order to provide a sufficiently high probability of containing the Mount Messenger long-tailed bat habitat, and maintaining breeding success and survival, the PMA should encompass a minimum area of 5,000 hectares of effective pest management. That is, Dr O'Donnell considers that given the radio tracking study to identify roost areas has not occurred,

an area of 5,000 hectares or more is required in order to provide an adequate level of confidence that the PMA does in fact protect bat habitats.

The proposed PMA would need to be adequately buffered against reinvasion by pests. Because the pest control targets within the PMA proposed by the applicant do not apply in the perimeter area. DOC witnesses had some doubt around whether the entire 3650 hectare area has sufficient pest management over it to provide for this purpose. Dr O'Donnell considers that the PMA proposed by the applicant may be sufficient if considered alongside the adjacent local pest control initiative at Paraninihi if that has long term certainty. That pest control currently does not have long term certainty.

That should not be read as some form of threat that DOC will withdraw funding for Paraninihi. Pest control at Paraninihi is undertaken by the Tiaki Te Mauri O Paraninihi Trust for rats, possums, mustelids, cats and goats, with funding from the Taranaki Electricity Trust, the Biodiversity Condition Fund, Lottery Grants Board, Ngāti Tama, DOC and the Regional Council. I have had to make a slight amendment to my submissions there where I said DOC is one of the smaller contributors. I should have just said DOC is a contributor, and

I understand that DOC provides both in kind and monetary support for Paraninihi.

THE COMMISSIONER: Ms Ongley, the Government's policy on predator free New Zealand by 2050, is that - from a departmental point of view - relevant to this discussion that clearly if it has got that sort of target, ongoing predator control and support for these sorts of projects, particularly from what I have heard from the evidence that this area is very special obviously to Ngāti Tama and the kokako releases and those sorts of things. Would it be fair to say that this was a high value area that could be assumed that predator control would continue?

MS ONGLEY: Yes, I think the next paragraph of my submissions is possibly the key point in that for this kind of adverse effect DOC's position is that we cannot proceed on assumptions like that. You might want to ask some of the other witnesses about predator free 2050, et cetera; but partly because of the additionality requirement - for a project such as this we are going to be potentially having significant effects - it is for the applicant to lead evidence on what the position for Paraninihi is and whether that pest control is secured in the longer term. I think you are going to hear from some Ngāti Tama

witnesses shortly, so the applicant has not been able to provide that evidence for whatever reason.

THE COMMISSIONER: All right, thank you.

MS ONGLEY: That is basically my paragraph 45. Paragraph 46. DOC has not flip-flopped on the required area for pest management to compensate for effects on the long-tailed bat. According to the principle of the early engagement, DOC's - and this is another bat expert - Moira Pryde undertook discussions with the applicant's bat expert. I have attached a record of those discussions to the submissions and I include a few quotes here. The main point is to rebut the suggestion that DOC has been inconsistent in requesting the 5,000 hectare area.

THE COMMISSIONER: Thank you, I see that, and thank you for that attachment.

MS ONGLEY: Indigenous vegetation: Dr Barea commends the use of the offsetting accounting system model used by Mr Singers but with some caveats.

So I will run through the remaining sections by just pulling out the key points. The middle of paragraph 48,

ecological integrity represents an ecological measure of the condition for the browse intolerant elements of the forest types concerned, and the consequential ecological benefits associated with condition improvement. So that is the basis of Mr Singers' offset model. Essentially this relates to DOC's suggestion that the entire proposal be viewed as compensation and not an offset because in addition to the fact that offset does not cover the fauna Dr Barea has concerns with the transparency of Mr Singers' offsetting model and I invite you to ask Dr Barea about that.

Avifauna, paragraph 54. Dr Burns provides for DOC on avifauna. Although he is generally comfortable with the revised PMA proposal he does have remaining concerns. His concerns generate the need for DOC to be involved in reviewing the detail of the ELMP before it is finalised, and for a thorough and comprehensive ability to apply adaptive management to the PMA. So essentially the revised proposal with the 3650 hectare is acceptable from an avifauna perspective. I include the Wildlands quote there, which is very similar to what Dr Burns is saying.

Fresh water. Dr Drinan, DOC's fresh water ecology expert, will explain the limits of the SEV model when dealing with high value freshwater environments. Dr Drinan has also taken a

pragmatic approach by accepting compensation had been acceptable, but only on the basis of recognising biodiversity values lost, through his recommendations for a multiplication factor to be applied and applying a value of zero to the mitigation/restoration site score. Sorry, that should say for culverts.

THE COMMISSIONER: So "for culverts" after "site score"?

MS ONGLEY: Yes. The applicant has updated its quantum of compensation to 11,536 m^2. While Dr Drinan accepts this falls short by approximately 1,000 m^2, what he recommends is it is a considerable improvement. Dr Drinan considers that the exact length and area of restoration should be finalised upon detailed construction plans on the basis of his methodology, which includes the multiplication factor and a score of zero for the culverts. Mr Duirs and Dr Drinan have questioned the need for mitigation for residual sedimentation effects.

THE COMMISSIONER: Ms Ongley, could I come back to the area of stream remediation. Again, SEV is a methodology which requires judgement to be made by experts so again this is a situation where we have one expert who has been through a process and comes up with a number and another expert with a slightly

different number in the order of 10 per cent, I think the difference is now. So would you accept that there is always going to be some differences when different people apply those sorts of methodologies; and it would come down to just being pragmatic and agreeing somewhere in between or some position that was in the right ballpark? Would that be a fair comment?

MS ONGLEY: I think if you ask Dr Drinan about that I think he might say that he is far more comfortable, even though it is 1,000 m^2, with the new figure. I do understand that the SEV is very sensitive to the judgements that the person inputting into the model makes, but Dr Drinan has more fundamental concerns than that, that relates to the use of the particular model in high value environments. I would say that of course you have to weigh up everybody's evidence, but I think that he does provide very detailed and comprehensive reasoning of why that SEV analysis has deficiencies where you have high value streams such as in this case. Part of it relates to, I think they are called the functions, there are 14 functions that the SEV analysis relates to and if you apply it properly only one of those relates to biodiversity values.

THE COMMISSIONER: Okay, thank you.

MS ONGLEY: Mr Duirs and Dr Drinan have questioned the need for mitigation for residual sedimentation effects. Previously the applicant appeared to assume such effects would be fully managed at all times during construction. The applicant has now accepted a more robust monitoring and response protocol, should an adverse effect occur. This goes some way to addressing DOC's concerns, although some improvements are needed to the conditions to determine triggers for when the project ecologist considers the effect to be moderate or greater, and thus requiring the matter to be elevated. That elevation of management should occur to the Ecology Review Panel.

This is if a sedimentation event occurs. There also needs to be a requirement for events based monitoring for in-stream invertebrates following prolonged high sediment levels being detected by in-stream monitoring devices. Dr Drinan proposes a trigger of a 20 per cent change in turbidity. The next paragraph is regarding fish passage where DOC and NZTA have come much further together on that; but Dr Drinan will address some remaining concerns he has.

Certainty: DOC considers that both a PMA and the areas for riparian restoration works are critical compensation and are required in order to allow any consent to be granted. The size

and shape of the PMA area and its actual location is critical. For example, another area that has a high chance of evasion from surrounding areas would not be suitable. I have referred again to a similar view from Wildlands; I will not read that.

THE COMMISSIONER: So is your position, Ms Ongley, that the PMA area really has to be settled and set as part of some sort of condition precedent? Because it is not settled and guaranteed now to what has been proposed; there is an area defined.

MS ONGLEY: DOC's position is it does need to be settled before consent is granted. Mr Inger is going to make quite a useful suggestion that DOC has a second area; that if this area ultimately cannot be used in terms of land ownership rights et cetera there is another area called the North Waitaanga site, and it is referenced briefly in Dr O'Donnell's evidence.

THE COMMISSIONER: Yes, I saw that.

MS ONGLEY: Yes, so DOC is going to make a suggestion that the current pest management site should be referenced in the conditions and that if that site cannot be used for whatever purpose then this second site should be gone to, because it is considered that is suitable. It is not acceptable to DOC, given

the importance of this as mitigation for this or compensation for this proposal, that it is simply left up in the air.

THE COMMISSIONER: So that second site is owned by the Department of Conservation?

MS ONGLEY: Yes.

THE COMMISSIONER: And would be available as a backstop?

MS ONGLEY: Yes.

THE COMMISSIONER: That type of condition, which we will hear from Mr Inger about, would provide certainty in your view?

MS ONGLEY: Yes.

THE COMMISSIONER: Okay, thank you.

MS ONGLEY: In the Buller Coal decisions, and I am again anticipating an argument from my friend, the Environment Court accepted a best endeavours condition for offset mitigation. But that only related to the Denniston permit protection area, which it was proposed would be protected from open cast mining in the

future. I wish to distinguish that case essentially because the best endeavours condition there did not relate to the equivalent to the PMA in this case.

THE COMMISSIONER: Could you just explain that a bit more for me?

MS ONGLEY: Yes. So in the Buller Coal case, and there are two decisions in the case because of the numerous litigation around it, the footnote 43 of my submission refers to the main compensation that was for the mine there. It was the Denniston biodiversity enhancement area, which was in that case known as the DBEA, which was an area of pest management, and the Heaphy Biodiversity Enhancement Area, and that was called the HBEA, and that was another area for pest management. I have said there proposed predator control for 50 and 35 years respectively.

Both those areas were conservation land, and I understand from the decision that there was no contest that pest management could occur on those areas. So through the decision the court basically said, "You have not done enough, what else are you going to give us in terms of compensation?" This is the reference in my paragraph 61 to the Denniston Permanent Protection Area, which was an additional area offered where

Buller Coal said that they were going to put a covenant over it so you could never opencast mine on that area in the future. So that was an additional area and that could not be tied up in terms of the covenanting before the hearing. So I think it was Judge Newhook said that you only need a best endeavours condition for that particular area.

THE COMMISSIONER: But not for the other wider area?

MS ONGLEY: Yes.

THE COMMISSIONER: Which was locked in?

MS ONGLEY: Yes, and that was the PMA.

THE COMMISSIONER: That is the equivalent of the PMA, this Heaphy --

MS ONGLEY: Yes.

THE COMMISSIONER: Okay, Heaphy area. Right, so I will read through those cases, thank you.

MS ONGLEY: Lizards: a predator proof fenced lizard enclosure is required. As Mr Chapman has accepted Ms Adams's evidence in that regard Ms Adams will not be appearing today and DOC looks forward to the details being reflected in the consent additions and a revised ELMP.

THE COMMISSIONER: Have you had a chance to look at those at all?

MS ONGLEY: Well I think that this was the amendment that Mr Allen handed out this morning so --

THE COMMISSIONER: Yes.

MS ONGLEY: -- no, I have not managed to read it. My witness is obviously not here. The concern with the old draft was regarding the need to monitor - and I see that that has been improved - it now says at the bottom of the first page, "Lizards will be monitored every three years".

THE COMMISSIONER: Yes.

MS ONGLEY: Sorry, it was more a concern over managing whether you had further pest incursions on a regular basis; I understand

that is very important. So there was a concern that that was not included here but rather than myself trying to work that out now I will possibly come back to you on that after lunch.

THE COMMISSIONER: Okay, that would be good, thank you.

MS ONGLEY: I do not propose to read out what I have said on code of conduct matters, except to say that DOC entirely rejects the code of conduct allegations that have been made by Mr Allen.

THE COMMISSIONER: Thank you.

MS ONGLEY: Invertebrates and biosecurity. From the perspective of invertebrate taxa DOC's expert, Mr Edwards, agrees that the larger pest management area now proposed would - if the targets are achieved - adequately compensate for effects on invertebrates. Mr Edwards raises concerns that the value of the Mangapepeke floodplain as a wetland habitat has not been recognised, and the construction footprint and AWA do cover very substantial areas of that wetland habitat. That is, as well as the potential effects of sedimentation there, direct physical effects will occur from the footprint of the road and the AWA. I set out there some concerns that Wildlands have stated, that that is more regarding some leading statements in the ELMP, and

I am unsure actually whether those have been changed or not regarding the restoration of the valleys because there is a large AWA footprint for laydown areas, fill areas et cetera in the Mangapepeke.

Paragraph 70, a full assessment of remaining wetland function has not been made, although Mr Boam has commented on retention of flood control capabilities, and Mr Singers on vegetation type and condition. It is acknowledge that vegetation condition is relevant to any assessment and DOC does not take this matter any further except to note it is a potential residual effect that does not appear to have been fully analysed. Also Dr Barea does not consider the restoration planting for the loss of exotic rush land on the Mangapepeke floodplain at a 0.5:1 ratio is acceptable. Mr Edwards is appearing today primarily to raise his remaining concern about the biosecurity measures proposed for bringing plants and soils to the project area.

I have covered DOC's position on the conditions in the ELMP and at the time of writing DOC has only just seen an updated set; so I think we have discussed that.

THE COMMISSIONER: Yes, so you will come back and we will have another discussion after lunch about that process.

MS ONGLEY: Yes.

THE COMMISSIONER: Thank you very much, Ms Ongley.

MS ONGLEY: I will call my first witness, sir, and that is Dr Burns.

THE COMMISSIONER: Thank you. Welcome, Dr Burns. Would you like to read out your statement?

DR BURNS: Eight native bird species have been found within or adjacent to the project area that have a New Zealand conservation threat classification status - Townsend et al. 2008 - of threatened or at-risk, meaning they respectively face a high risk of extinction in the wild or a comparatively slower rate of decline. Another five threatened or at-risk bird species could be expected to be present in the project area but have not yet been detected by the applicant. In my opinion the project is likely to have a high impact on several native or threatened bird species. Such effects could lead to a decrease

in the abundance of birds and a subsequent decline in the ecosystem processes provided by birds.

The main proposals that would mitigate or compensate for effects on avifauna are (a) pre-construction radio-tracking of kiwi in or adjacent to the road corridor and possible movement of kiwi and translocation of kiwi eggs during construction; (b) control of introduced mammalian pests to reduce predation events on birds to low levels; and (c) a fence to protect kiwi from vehicle strike and underpasses to allow kiwi passage and dispersal.

Successful mitigation and compensation for avifauna will primarily depend upon the success of pest management. I agree with Dr McLennan that the increase in the PMA has made the attainment of desired bird increases in the PMA much more certain. I did not consider the previously proposed 1,085 hectare PMA to be sufficient to address all adverse effects on avifauna.

Subject to my comments below regarding kiwi, if the proposed pest animal targets are achieved I consider the proposed management of 3,650 hectares would benefit the forest birds.

For effects on kiwi I consider the PMA is relatively small to have high confidence that this will provide compensation, i.e. a considerably enhanced population, and would only be acceptable if a number of requirements are met. For this reason I consider a robust adaptive management regime through an ecological review panel would also be essential. For kiwi I consider that the 6 per cent annual growth figure used by Dr McLennan is overly optimistic when considering the likely outcome of the proposed action of the PMP within the 3,650 hectare PMA.

As Dr McLennan states, the differences between us largely relate to the expected rate of sub-adult dispersal and the carrying capacity, the maximum density, of adult pairs that can be expected to accumulate within the PMA. When the sub-adult dispersal rate reaches a critically high level the population will slowly decline as older kiwi die and are not replaced by sufficient young kiwi. That is, too many young will have dispersed outside of the predator protected area to sustain the population. If sub-adult kiwi disperse to an area that is not subject to effective predator control, while they themselves should survive assuming there are no ferret or dog predation

events, their offspring are unlikely to survive resulting in a long term population decline.

I modelled an approximate 0.5 per cent annual compounded growth rate of kiwi in the PMA over the first 30 years. This is a large distinction from Dr McLennan's figure as percentage growth is compounded year upon year to the population giving exponential numerical increases. Even a small difference of percentage population growth can lead to large differences in absolute numbers of kiwi over time.

In my model I used population premises generated by Dr Robertson of DOC, and a long running study of western brown kiwi at Tongariro. Dr McLennan used data also from Dr Robertson, as co-author of the Innes et al 2015 report. Ultimately I agree with Dr McLennan that the proposal should have benefits for kiwi but at a lesser rate of population growth. My approach indicates there is little room for error, so that any effects of the project that are slightly greater than I have assumed in my population model could result in large population differences over time, including a static or perhaps even declining kiwi population.

If monitoring shows that the erection of a fence to prevent vehicle strike and/or the underpasses, culverts, are not successful, or if stochastic events occur in the landscape - that is also referred to by the Wildlands supplementary report, page 19 - then the gains may not be achieved. This may mean that further intensive pest management for mustelids across a larger contiguous area would be required in order to adequately compensate for the deaths of adult kiwi and/or dispersing juveniles.

For the PMA, animal pest targets are 5 per cent tracking tunnel index for rats and 5 per cent residual trap catch index - RTCI - or 5 per cent chew card index - CCI - for possums, in an area 200 m or greater from the perimeter of the entire PMA. For stoats the target is zero detections 500 m or greater from the perimeter. The applicant has clarified that the proposed 3,650 hectare PMA would be intensively managed for all target animal pests, including goats and pigs, but that these perimeter areas will be excluded when determining performance monitoring outcomes. While I agree that incursions into the perimeter area could provide for adverse monitoring results, I still have a concern that if the perimeter area is not subject of performance measures there is some doubt as to the success of pest management there. I consider that best practice methods

involving trapping and pest animal monitoring would be difficult to achieve, largely due to the difficult terrain. This means that the Ecological Review Panel would have an important adaptive management function.

I consider it vital that the location, including the size and shape of the PMA, be known in order to assess the likely outcomes of proposed mitigation and compensation. Size and shape and the status of adjacent land are essential in order to predict net benefits to avifauna, and the likely rates of pest incursions into the PMA. Inappropriately designed management areas with high perimeter to area ratios let more pests in and let more birds out through their dispersal. I note that Wildlands also considers the location of the PMA needs to be known to vet the outcomes, and that is in the Wildlands supplementary report, page 24 to 16.

For bittern I understand that the applicant has agreed to install an automatic sound recorder in each of the Mimi and Mangapepeke catchments in spring 2018, and to undertake an adaptive management response if bittern are found. I agree this method should be effective if bittern use the project area to breed. I do not consider it to be effective if bittern use the site intermittently or during autumn or winter. I suggest

greater survey effort for bittern be undertaken for this purpose.

I agree with Wildlands that it is clear that the project footprint is within close translocation dispersal distances of kokako, and an annual pre-construction kokako survey is appropriate. I agree with Wildlands that management needs to occur if a kokako pair have a nest or an established territory within an area to be cleared of vegetation; page 13 of the supplementary report. Page 31 of the supplementary report, Wildlands recommends a condition be added to the designation addressing the actions required if an established kokako territory or breeding pair were to be found within the project footprint. I also consider the Ecology Review Panel should provide a guidance on appropriate actions if any kokako are recorded as occurring in the project area or PMA on an ongoing basis.

I agree with Wildlands, page 86 and 31 of their supplementary report, that details need to be provided on performance measures for the kiwi exclusion fences and the proposed locations of the fences. I consider these fences should be provided for along the entire length of the road on both sides. The applicant previously committed to finalising

the design of fences and barriers in consultation with DOC, and that was an attachment in my EIC. I agree with Wildlands, page 18 of their supplementary report, that monitoring for forest birds other than kiwi should not cease after three years, even if the first three-yearly results show the 2 per cent increases are met. I agree monitoring should occur for 12 years to demonstrate any increases are maintained.

For kiwi I expect the PMA kiwi population to stabilise and then slowly increase. After 30 years I expect the PMA to be producing between 100 and 140 kiwi chicks per year, which should result in approximately 13 surviving chicks establishing territory as adults within the PMA each year. The monitoring approach for kiwi should reflect the slow increase, that is long term monitoring should be provided for.

THE COMMISSIONER: Thank you very much, Dr Burns. Can I just ask you a question about paragraph 3 of your summary? Are your (a), (b) and (c) largely agreed in principle with Dr McLennan?

DR BURNS: (a) yes, (b) the need to control pests, yes, indeed, and (c) yes, fence and underpasses, yes.

THE COMMISSIONER: Is it fair that my reading of your evidence, which I have read through in detail, that the PMA at its size now is, I think you use the term "adequate" a number of times; it is there or thereabouts in terms of scale and size in terms of the kiwi -- the forest birds definitely?

DR BURNS: Yes, forest birds.

THE COMMISSIONER: Definitely, and kiwi?

DR BURNS: Kiwi, I think it is likely that kiwi will increase but slowly over time.

THE COMMISSIONER: More slowly than Dr McLennan --

DR BURNS: Yes, yes.

THE COMMISSIONER: But that the PMA will provide an opportunity for a slower increase in kiwi?

DR BURNS: I believe so. I have also said though that I think that emphasises the need for the monitoring in the long term, just to confirm that we are getting increases that we are getting.

THE COMMISSIONER: Okay, so I will ask you some questions about the monitoring. That is good, so 3(a), (b) and (c) in principle have been agreed, and your paragraph 7 of your summary statement, Dr McLennan uses 6 per cent annual growth figure, you have said below that, that you have got a large distinction from Dr McLennan's figures in your paragraph 9. So if he is using 6 per cent whereabouts would you be if you did look at percentage increase?

DR BURNS: I have said in 9, so compared to his 6 per cent --

THE COMMISSIONER: You are saying 0.5 per cent?

DR BURNS: -- 0.05 per cent, and he is saying 6 per cent, yes.

THE COMMISSIONER: Right, because that is quite a big difference, is it not?

DR BURNS: Yes, and I try to explain a little bit about the implications of that.

THE COMMISSIONER: So the implications in paragraph 8 is where you try and explain a lot of that difference?

DR BURNS: Yes, and in 9 too. I have not looked at the absolute numbers but I recall Dr McLennan's evidence was 700 chicks produced per year, 740 I think, and I am predicting more around the 120 mark. I think the big difference there, which I have mentioned, is that in my model I have tailored it to the site, I have tried to use figures that are applicable to that western kiwi population and also tailored it to the size and shape of the site; so I am assuming a large dispersal out of the area. I understand Dr McLennan's model does not necessarily take that into account. He did get his figure from a report which was based on a Northland study, which Northland birds have had a much higher productivity rate. So he has supplied a Northland figure and some of those areas were a lot bigger than has been proposed here, so I consider the area here to be just large enough.

THE COMMISSIONER: Just large enough. All right, thank you for that. Just in your paragraph 8 where you explain the sub-adult dispersal rate and the issues with slow decline as older kiwi die and they are not replaced by sufficient young. Can you just take me through that a little bit more so I can get that clear in my head?

DR BURNS: Yes, sure. So kiwi are a bit different than lots of other birds because once they are an adult they are pretty bomb proof in terms of predators except for dogs and ferrets, which we are hoping is not a factor in this area. So they get killed when they are very young and that is by stoats, and when they get to a certain size then they should develop into adults and breed. But if they move outside the protected area and disperse out and then they have their young outside that protected area, then while they themselves will be okay their offspring will likely probably be killed by stoats.

THE COMMISSIONER: Be predated, yes.

DR BURNS: So there is a critical parameter there in terms of the extent of dispersal, and I guess there is always uncertainty around that at different sites. Again I think that comes back to the importance of the monitoring in the long term to determine what their outcomes are at this site.

THE COMMISSIONER: So they will be dispersing outside the predator controlled area because there is not enough range in the meantime, or they just wander around?

DR BURNS: They just do that. If there was a really dense kiwi population they would disperse out and some would stay. If there was a low density some would disperse out and some would stay; so they are almost density independent.

THE COMMISSIONER: That is interesting, thank you. Just looking at your paragraph 15 about the location of the PMA needs to be known. My understanding is that area has been mapped and put in evidence in front of me, so are you suggesting that it is still uncertain because it has not been locked down, or what is the point there?

DR BURNS: Yes, that is the certainty that the PMA is confirmed, the confirmation of the PMA. If there are going to be changes it could affect the ability of kiwi to have a self-sustaining population.

THE COMMISSIONER: I think the applicant has committed to that number, 3,650, and you are saying that the final size and shape of that is quite important?

DR BURNS: Yes, the shape is important because if it is a long skinny PMA, even if it is 3,650 hectares, you will get a lot of dispersal of kiwi out of the area. So you would have a high

perimeter to area ratio in a long skinny shape, but if it is square and fat, if you like, if it is a square shaped PMA then a lot of that dispersal will be contained within the PMA so you will get more retention of kiwi chicks within the PMA and a subsequent increase in population. If it is too skinny you will get too many leaving the area, and commensurate with that you will have more pests being able to invade easier in a long skinny shape, whereas a square area protects a core internal area a lot more effectively.

THE COMMISSIONER: Yes, all right. Now, referring to bittern, they have not been seen by any of the ecologists in this current round of study. I think your evidence is that they possibly might be there because the habitat is the sort of habitat that you might expect to see bittern. Is that what you are saying?

DR BURNS: Yes, that is right. I do not know how much time the NZTA ecologists have spent in the -- I understand it is quite substantial but I do not know exactly where they have been and at what times of the year. Bittern can be incredibly cryptic outside the breeding season. In the breeding season they can be detected with their booming, well the males can be.

THE COMMISSIONER: That is what I understood, yes.

DR BURNS: But outside the breeding season they tend to -- well there has been studies done in Hawke's Bay and elsewhere that shows at that time of year they can leave their breeding sites and disperse very widely in the environment, and even go to very small areas of wetlands to feed. So I still consider it entirely possible that bittern sometimes could use this site. It may be intermittently, it may be at times when the ecologists have not been there, for example. They also can freeze quite often, so even if you are walking past them sometimes their behaviour is not to fly away, which is when they would be detected, but to freeze in place and you can walk straight past them and you would not even know they are there in the right habitat. So it is difficult to know if they use the site and it depends how much time people have spent there throughout the autumn and winter period.

THE COMMISSIONER: Yes, but you note here that the applicant has agreed to installing the sound recorder during the breeding season in those two catchments.

DR BURNS: Yes.

THE COMMISSIONER: So if they are there and breeding and booming you would expect them to be heard by the sound recorders?

DR BURNS: Yes, that is all fine, it is just that if they do not use that site as a breeding site but use it intermittently or in the winter period then you will affect them.

THE COMMISSIONER: Okay, thank you, I understand that. Now, paragraph 17 you talk about kokako. You talk about the actions that might be required if there were breeding pairs coming into the project footprint. So you are talking about the project footprint being the construction site area rather than the PMA?

DR BURNS: That is right, yes.

THE COMMISSIONER: So that is what the concern is?

DR BURNS: Yes.

THE COMMISSIONER: Okay. So what would those actions be - appropriate actions, guidance - if they were seen in the project footprint?

DR BURNS: It would largely depend I think if they were nesting. If it was a single bird that was established in the territory then I accept that they would move if there was vegetation clearance. But then that also sets up issues about severance of habitat for them to be able to move through and things like that. If they were nesting then I think the only appropriate action would be to avoid vegetation removal until they had finished their nesting activities.

THE COMMISSIONER: All right, and this duration of monitoring in your 19 and 20, so in 19 I think you are talking about monitoring for forest birds other than kiwi. You support the Wildlands report that this should occur for 12 years to demonstrate maintenance of increases. Is that the same period that you are looking at when you are talking about long term monitoring for kiwi in paragraph 20, or is that a different number?

DR BURNS: It is different. Because of the slow increase that I consider appropriate for kiwi here, I think that the monitoring should occur for up to 30 years for kiwi. But I think that the target results that the applicant is seeking for forest birds should be able to be met within 12 years.

THE COMMISSIONER: Okay. I think the proposition on the forest birds is that if there is a 20 per cent increase in the first 3 years you could assume that things were being successful and you could stop monitoring. So there is always in writing conditions in my experience quite a lot of thought needing to be given to monitoring for monitoring's sake, and when you actually are demonstrating that things are improving to a degree monitoring can then stop. So again that comes back to professional judgement, does it not?

DR BURNS: I guess so. I mean, some things like kereru for example that are one of the birds that are a good thing to increase, they can move around the landscape a lot and they usually go for food sources, so it can just happen that some years a food source might be in high abundance at the PMA and in other years it might be some distance away, maybe 10 km or 20 km away, and a kereru will move there where that food is. So sometimes you may get a very high level which is a bit of an artefact in some species as they do not have a territory, and so we just need to be sure that we do this monitoring several times, every 3 years for 12 years, and if those results are consistent over that time then we have got greater confidence that the targets are actually real, I guess.

THE COMMISSIONER: All right, and I have just been looking back through your other evidence where I made a few comments but I think I have covered all the questions I have so thank you very much, Dr Burns.

MS ONGLEY: My next witness is Mr Edwards. I might just put the PMA -- there we go. That might just be helpful as we are going through the evidence, sir.

THE COMMISSIONER: Okay, thank you.

MS ONGLEY: So if you have Mr Edwards's speaking notes --

THE COMMISSIONER: I think I have got those here. Yes, I do have those, thank you.

MR EDWARDS: I am an expert in the conservation of threatened invertebrates and invertebrate biodiversity assessing. Occasionally I advise other Government departments including MPI on invertebrate biosecurity matters. Biosecurity. In my evidence I raise concern that the ELMP does not discuss the use of invertebrate expertise to inspect rooted plants for pests potentially arriving at the Mount Messenger replanting sites. For example, the measure for invasive Argentine ants is to

consider containment if an incursion is later discovered. However, no site surveillance programme for Argentine ants or any other potentially new invertebrate incursion associated replanting programmes is proposed.

In paragraphs 48 and 49 of Mr MacGibbon's rebuttal evidence states in relation to the proposals in my evidence to increase the biosecurity measures, and I am quoting from Mr MacGibbon:

> "I support the measures proposed and recommend that they are added to, and I will redraft the biosecurity management plan, section 11 of the ELMP. In paragraphs 6.4 and 6.5 Mr Edwards proposes, before construction and after planting, surveys of the project site for invertebrate pests by a suitably qualified entomologist. I agree with his approach as it will serve to determine what, if any, pest species are present before construction commences and, therefore, allow biosecurity efforts to focus on those high risk pests that are not present."

I return to my submission now. I understand it is now agreed that the measures in 6.3 of my evidence-in-chief will be undertaken, including inspection of nurseries where rooted plant material is sourced, and in 6.4 the inspection prior to planting activity.

I also recommended in 6.5 within the growing season of any plantings and a year after any planting activity a person qualified to survey or identify invertebrate pests should carry

out invertebrate pest surveillance of the project area and any plantings. Dr Watts notes:

> "I am of a view that during and post construction monitoring would have little benefit."

I myself remain of the view that such post construction monitoring should benefit biosecurity from an invasive species and should be included in the ELMP.

THE COMMISSIONER: Okay, thank you. So I have just had a look at the updated ELMP and that section 11 and Dr MacGibbon has updated some of those biosecurity management requirements. Just from a quick read, I do not think he has picked up your last point in your paragraph 5. Are you referring to some surveillance after any new plants are actually in place, so monitoring on a post construction basis?

MR EDWARDS: Yes.

THE COMMISSIONER: So what would be the mechanism if there were pests discovered on that basis? Would you then move to a containment or irradiation process?

MR EDWARDS: That is a good question and there is a range of possibilities that could play out for that. It is my understanding that between the commencement of the construction work and the end of planting it could be a seven year period, at the least seven years. So right now it is the ongoing situation in New Zealand that we have new pests arriving in the country, we have new pest invasion events occurring throughout New Zealand and so the nature of the invertebrate pests that we are trying to deal with, we do not know at this point for some. We do know for some species like Argentine ants, but some of them would be hard to predict. For example, scale insects are quite a concern and arriving in New Zealand, being detected by the Ministry for Primary Industries, and so those sorts of pests would be noticeable, exotic scale insects for example would be noticeable on plants at some times, in some situations, and in that case you then have to decide whether it can be contained or irradiated.

THE COMMISSIONER: But I think the proposition from the applicant as amended is that there would be thorough inspections of both plants and soils and plant material as the plants were being prepared. Would that not provide the adequate protections you need rather than thinking, "Well, we need to do some post construction monitoring as well"?

MR EDWARDS: If you were only to do one thing certainly hygiene advice really within a nursery environment is a much better line of defence, most certainly it is a much better line of defence. Unfortunately in my view it is not the end of the story, it is not necessarily fool proof, it is still possible for pests to sneak through.

THE COMMISSIONER: Yes. Are you aware of other projects and other conditions which require this post construction biosecurity monitoring; is this something that you based on a precedent or something you have thought about for this project?

MR EDWARDS: That is an excellent question, and while the department's own biosecurity best practice is not perfect everywhere around the country, we have a high standard for offshore islands around New Zealand, and so again things like quarantine and inspections and that sort of stuff are quite important to that. But also surveillance for pests on the islands, even though we have quarantine we do have such practices, it is routine in a lot of cases to do that. In the mainland situation, I guess for a mainland island it is also the case that there are inspections in those sorts of places for some mainland islands. I guess if we think about important

natural areas like this one, do we have such a high test? I think it is probably a little bit case by case but we certainly ask for that, ask for best practice from people operating commercially or routinely in natural areas when it comes to biosecurity. When it comes to surveillance for pests it is quite common in the forestry industry; and on public conservation land, less so.

THE COMMISSIONER: Less so on public conservation land?

MR EDWARDS: That is probably resources rather than as a choice.

THE COMMISSIONER: Right. Thank you for that. I think just as a more general comment, Ms Ongley, this is probably an example of where the different additional drafting that was requested could be added into that conditions discussion. It is a good example, I think.

MS ONGLEY: Yes.

THE COMMISSIONER: All right, thank you, Mr Edwards. I will just have a quick look at your main statement of evidence to see if there is anything else I need to pick up. No, I think that is all I have. Thank you very much for your presentation.

MS ONGLEY: Thank you. My next witness is Dr O'Donnell.

THE COMMISSIONER: Thank you, Dr O'Donnell.

DR O'DONNELL: Thank you. I've worked with bats in New Zealand and internationally for over 25 years. I was involved in developing the first New Zealand bat recovery plan, and I am now leader of the New Zealand bat recovery group. I'm also co-author of the research paper which was attached to the supplementary evidence of Mr Chapman, referring to the Edmonton Valley study, which is in relation to the size of the PMA.

So the significance of the proposed area for bats. Long-tailed bat is classed as threatened, with it in a category where it is at most risk of extinction, nationally critical. The applicant found high levels of bat activity in areas where it is proposing that many trees will be felled during road construction. Long-tailed bats were recorded at 94 per cent of survey locations, with activity rates of up to an average of 157 bat passes per night per station.

Mr Chapman recorded feeding activity at several sampling stations, and relatively high levels of bat activity at dawn and

dusk on several consecutive nights, which he stated was potentially suggestive of bats departing a roost at dusk and returning to the roost at dawn.

Based on my experience, and surveying long-tailed bats for over three decades across much of New Zealand, these findings are among the highest bat pass rates that I am aware of. I conclude the Mount Messenger project area supports a significant population of the critically endangered long-tailed bat.

Breeding roost trees are rare and specialised features in the landscape, that tend to be hundreds of years old, and are almost irreplaceable, except over very long timeframes. If breeding and roosting trees lie within the project area, as suggested by Mr Chapman's survey work, adverse effects will occur when trees are destroyed, even if the bats are not in them at the time of felling.

Bats don't just change roost on a whim. They follow a traditional routine that is so strict that they'll often use the same tree on the same day each year.

Potential adverse effects. Internationally, roading projects are known to impact on bats. My evidence lists five

significant adverse effects of the project on bats in paragraph 7.3 of my evidence.

The New Zealand Land Transport Agency commissioned Wildland Consultants, Landcare Research, and AECOM to research roading effects on bats and develop a framework for managing these effects. This is the NZTA Bat Management Framework that was attached to my evidence.

THE COMMISSIONER: Dr O'Donnell, I think I'm missing a page possibly.

MS ONGLEY: Yes, I'm sorry sir, I've just noticed that that's been copied incorrectly, I'm very sorry about that.

THE COMMISSIONER: That's all right.

MS ONGLEY: And I think the members of the audience will only have pages 1. Sorry about that.

DR O'DONNELL: I'm commencing at the top of page 2, and paragraph 9. Well, continuing there.

The framework attempts to address levels of ecological uncertainty around mitigation options, and describes improved bat monitoring. The framework recommends an "avoid, remedy, mitigate, offset, compensate" approach. For example, this is quoting the framework:

> "Managing the impacts on bat population should be based on a series of essential sequential steps, taken throughout a project's life cycle, in order to eliminate or limit any residual negative impacts on bats and other biodiversity values. This consists of Avoid – measures taken to avoid creating impacts from the outset. This is often the easiest and most effective way of reducing potential negative effects, but it requires biodiversity to be considered in the early stages of the project. It places large emphasis on pre-construction bat surveys to locate potential roosts, particularly maternity roosts."
>
> Which are -- is the term for the breeding roosts.

> "Feeding sites and flight paths also should be identifiable, particular focus on avoidance of roost destruction and disturbance, and avoidance of flight paths. This may necessitate changing the location, route alignment, or selecting a different option."

For this project, the applicant has failed to undertake a radio tracking study to confirm where the bats' breeding trees are. This means that there is significant uncertainty about the precise impacts of the roading development on bats.

Mr Chapman suggested only 1 per cent of long-tailed bat habitat will be destroyed during road construction. Given that

no one has surveyed the bat habitat beyond the proposed road alignments, and no routes have been searched for or identified, it is impossible to claim a proportion of habitat loss.

Mr Chapman suggests that the rate that trees will be felled to clear lands for road construction was well within the natural levels of tree fall. I consider Mr Chapman has over-estimated the natural loss of -- intact native -- of tree loss in intact native forest by an order of magnitude. Records of natural loss of roosts in the Edmonton Valley over 25 years show that only 2.8 per cent of roosts have fallen in this time.

Studies in pine plantations at Kinleith, which Mr Chapman bases his claim on, cannot be transferred to this environment. My evidence is that the effects of the project are potentially catastrophic for long-tailed bats, in particular the felling of breeding trees during road construction may lead to the extinction of the Mount Messenger bat population.

Radio tracking studies are normally carried out for bat conservation projects in New Zealand. Radio tracking studies should involve finding a good number of bats during different seasons. Radio tracking should involve tracking both sexes and age groups of bats, because breeding females and juveniles are

likely to have different requirements from males and from each other. Because bats move to new roost sites frequently, it takes time to find the true extent of the breeding trends.

Through our DOC radio tracking studies, we generally allocate at least a whole breeding season, generally from October to February, to define roosting areas at a minimum, because catching bats is acknowledged, is difficult, mainly because the echo-location calls can detect most tracking devices. In my evidence-in-chief I have explained why I would be surprised if the applicant's attempt to catch bats for radio tracking had been successful, because of the lack of effort, and the season in which it was undertaken.

Mr Chapman says that, although his recommendation to the project team was to carry out further attempts to trap and radio track, the project team decided to focus instead on addressing uncertainty by increasing the size of the PMA to benefit bats, and relying more on vegetation removal protocols, or VRPs. Although radio tracking would be preferable, I have taken a pragmatic approach, and accepted the focus is now on the size and adequacy of the PMA, together with the application of the VRPs.

Paragraph 18, in relation to the size of the PMA, I understand that the proposed 3,650 hectare area for pest management is largely based on the effectiveness of predator control in the Edmonton Valley study. There we demonstrated a benefit for long-tailed bats in a 3,350 hectare area. We also concluded that for pest control to be effective, annual survival of adult female long-tailed bats must be greater than 79 per cent.

The lack of radio tracking also has implications for the size of the PMA. The size of the PMA needs to provide adequate confidence that it will encompass a significant proportion of roost trees. In my evidence I provide examples where this has not occurred, and where benefits for bats have thus not been achieved without moving PMA boundaries, and this -- two of the examples I have were in my EIC in figures 2A and B for the Maruia and Heaphy areas.

THE COMMISSIONER: Could I just pause there and just have a look at those?

DR O'DONNELL: Sure. And essentially --

THE COMMISSIONER: Yes?

DR O'DONNELL: -- both those areas we designated pest management areas, initially based on where bat activity was recorded using automated recorders, just as Mr Chapman did. But we then -- we've learned previously that we should actually check this, and so radio tracking studies show quite remarkably, I suppose, in some ways, that the Maruia area none of that was within our original PMA, and that has since been rectified by expanding the PMA to a larger area as a consequence of that. Same with the Heaphy example I have in there, where again the blue dots show where we recorded bat activity using the automatic recorders, and the red dots show where we actually found the roosts in the following summer. And then we pushed the -- so we've moved the boundary to expand to control that area.

So, yes, these are just examples of why you really need a radio tracking study to make sure that your PMA is in the right place for bats.

THE COMMISSIONER: So the radio tracking study, your evidence is that -- I'd initially understood that was tracking around the project area to find roosts within the project area. You're saying that the study should have extended to the PMA to see how many roosts were within that area, which would be a -- that

would be a huge study, wouldn't it? 3,650 hectares. How long would that take?

DR O'DONNELL: Well, it really comes down to catching some bats and seeing where they take you, so --

THE COMMISSIONER: Yes.

DR O'DONNELL: -- usually once you get some bats with transmitters on them, you -- it becomes fairly clear fairly quickly, if you're doing it at the right time of year, where the roosting sites are.

THE COMMISSIONER: Yes.

DR O'DONNELL: It does take time to build a picture of where all the roosts are, but -- so I mean, I would have done a two-stage approach where I would have tracked along the route to see if there were actually any roosts on the route itself. Because that would remove the uncertainty straight away. If there are no roosts on the route, then that particular impact wouldn't be there. But given that that didn't happen, I sort of -- and it's moved to a state where a pest management area has been

recommended and compensation, I would then recommend that radio tracking occur, to make sure you get that in the right place.

THE COMMISSIONER: Okay. So you do n0t think the fact that there has been a lot of bat activity within this area --

DR O'DONNELL: Well I mean, I'm not aware of anybody surveying that, except for along the route, the line of the route itself.

THE COMMISSIONER: Yes.

DR O'DONNELL: So there may or may not be bat roosts in that PMA.

THE COMMISSIONER: Right. So you could not use a general rule of thumb that the habitat, the climate, is similar, or some of the areas in the PMA I think we have heard evidence that is probably better habitat? You cannot use a general rule of thumb that if bats are in one place in a location, they are likely to be somewhere nearby?

DR O'DONNELL: Well the approach I take, which I refer to in my evidence, is it's about the size of the area again. And based on studies that I've done in, for example, in north -- in King

Country, and the studies that have been done round Hamilton, and studies in the South Island, in fragmented and in forested landscapes, the bat home ranges are markedly larger than the PMA, so there could easily be roosts in that PMA. There could equally easily be roosts just to the north of the forest, or to the west, or so on. And that's, again, comes back to why I pragmatically suggested that the PMA should be more than 5,000 hectares to at least maximise that chance. And that 5,000 hectares is -- if it's in a solid block, is based on the home range studies that I've done throughout New Zealand, about the size of the range.

So that's where I've come to that figure, it is based on these radio tracking studies that I've been undertaking for a couple of decades.

THE COMMISSIONER: All right. Thank you. Carry on.

DR O'DONNELL: So I'll continue at paragraph 20.

In the Edmonton Valley, the previous control was previously focussed on known roosts. That is, we knew exactly where all the roosts were. This meant that we could ensure they were in the middle or core of the management area, thus maximising

protection. We also had tracking areas that stretched 5–10 kilometres from the core area, buffering against reinvasion of predators.

Mr Chapman is incorrect where he suggested that this Fiordland study had no buffers.

My evidence responses to Mr Chapman's comments on the implications of this study. I responded to his comment that intensity of predator control will be more of a factor in the North Island than Fiordland areas. The North Taranaki area is likely have different density and composition of predators than Fiordland. I consider that predation pressure will be high at all the time, rather than, as occurs every few years in the case of Fiordland.

I also responded to -- in my evidence-in-chief to Mr Chapman's suggestion that long-tailed bats have a similar -- a smaller home range size in areas of habitat that is fragmented and patchy, meaning that a lesser area may be required in the North Island in this context.

And again I'll just reiterate that the studies I refer to in my evidence, which I've been involved in, all demonstrate

that the home range size of colonies are larger than the size of the proposed PMA. Thus, there is a reasonable chance that breeding roosts will be located outside that area.

If we knew that the main roosting area for long-tailed bats at Mount Messenger was in the centre of the proposed PMA, I would be satisfied with its size. However I contend that if you don't know where those roosts are, the management area needs to be larger, to maximise the chance of protecting the roosts. I suggested this be a minimum of 5,000 hectares. This is at the low end of what the Department of Conservation would plan for. And our scientific research demonstrates that the best recovery rates are achieved with predator control over 26,000 hectares.

Buffering. The PMA would also need to be --

THE COMMISSIONER: Look, could I just --

DR O'DONNELL: Sure.

THE COMMISSIONER: -- explore that a bit further. So you have made the suggestion that a radio-tracking process over a single season, and I think you mentioned October to February?

DR O'DONNELL: Yes.

THE COMMISSIONER: Would be in that PMA area, would -- likely to define roosting areas. That is a --

DR O'DONNELL: Yes, and how well it described it would be based on how many bats were trapped --

THE COMMISSIONER: Yes.

DR O'DONNELL: -- and I'll recommend, you know, say tracking maybe 60 bats in that period across -- of different ages and sexes, to get a good mix of where the roosts are. Because different sexes and ages use different trees at different times.

THE COMMISSIONER: And would it be realistic to be able to trap 60 bats, given the lack of success that Mr Chapman had previously? Is that --

DR O'DONNELL: Well I --

THE COMMISSIONER: -- is -- over one year of exercise, October to February for example?

DR O'DONNELL: Yeah, well the studies that I run, we basically track all summer.

THE COMMISSIONER: Yes.

DR O'DONNELL: And over time we accumulate catches, and then we track bats to their roosts. Once you find their roosts you can catch more bats at the roost, and track those as well. So -- but like, Mr Chapman only spent nine days trying to catch them, and you know to me that's just not long enough. You know, and I think he recognised that, and recommended further work based on that.

THE COMMISSIONER: But you would be satisfied, for example, that if there was a study October to February, and there was bats tracked, and the PMA showed roost areas --

DR O'DONNELL: Yes.

THE COMMISSIONER: -- and confirmed the size, that would be an evidential basis to maintain the size as --

DR O'DONNELL: Yes, I know -- the other point I'm making, which is about the buffering, and that needs to be adequate as well, which is -- I was about to summarise.

THE COMMISSIONER: Yes. So if there is no tracking study, this is where you get to your 5,000 hectares, is it?

DR O'DONNELL: Yes, and that's based on the radio tracking studies I've undertaken, which show that that's the minimum home range size of bat colonies, both in the North and South Island.

THE COMMISSIONER: Yes. Right, carry on.

DR O'DONNELL: So buffering, I'll just resume at paragraph 24. I based my evidence on buffering on reading the applicant's pest management plan, which states:

> "The area receiving all of the benefits of permanent intensive pest management resulting in significant improved ecological integrity, will be at least 2,590 hectares in size, after the deduction of a 200-metre deep buffer around the full PMA perimeter, and performance monitoring indices will be generated from the area of the PMA, excluding a 200-metre deep buffer around full perimeter of the PMA. Pest densities can be expected to be higher than the buffer as a result of the incursions from the surrounding unmanaged landscape."

In his rebuttal evidence, Mr MacGibbon acknowledges that buffers of zones suffer occasional penetration from pests. Mr MacGibbon acknowledges that currently the ELMP does not adequately emphasise the need for intensive edge pest management. He suggests that in recognition of the importance of the pest management around the PMA and margins, it is proposed that additional pest management effort be proposed for that zone.

This increase in effort needs to be fixed and clearly described in the ELMP, meaning conditions. I've only very briefly checked the revised ELMP, and Mr MacGibbon's certainly added a paragraph about intensifying control on the buffers, although he excludes controlling cats from that, which is kind of the key long-tailed bat predators, but I'd have to have a look and a more thorough think about what he's said, to comment fully.

THE COMMISSIONER: Thank you.

DR O'DONNELL: I'm also concerned that in some parts of the PMA there is no buffer between the PMA and surrounding habitats proposed. If these matters can't be addressed, then radio tracking should be returned to, or consideration be given to

implementing the PMA in a more defendable block of greater the 5,000 hectares of forest for the remnant bat population of North Taranaki. For example, north Waitaanga, which is approximately 25 kilometres to the north-east, which he mentioned earlier.

THE COMMISSIONER: So coming back to your proposition, and obviously the proposition of the Department is that around paragraph 27, that radio tracking could be returned to, some more work done, or there could be a larger area moved to for the management area and there is an available area that DOC could assign to that purpose.

DR O'DONNELL: Yes. Yes.

THE COMMISSIONER: And if the radio tracking was returned to, and it demonstrated that the current PMA was suitable, that could then be locked in after that?

DR O'DONNELL: Absolutely.

THE COMMISSIONER: That process.

DR O'DONNELL: Yes.

THE COMMISSIONER: Right, thank you.

DR O'DONNELL: I'll continue at paragraph 28. The PMA proposed by the applicant may be sufficient if buffering is improved, and considered alongside the adjacent local pest control initiative at Parininihi. However, intensive pest control at Parininihi would need to be ascertained in the long term.

Potential for long-tailed bat recovery in the absence of the project. Although long-tailed bats in the area are likely to be in decline already, loss of habitat while constructing the road is likely to increase that rate of decline. It would also reduce future opportunities, and compromise current efforts undertaken by DOC, to recover the north -- long-tailed bat populations in North Taranaki.

Lastly, I'll move on to vegetation removal protocols. I demonstrate in my evidence that while many trees may look like suitable bat roosts at first glance, only a tiny proportion are likely to have the specific features required by long-tailed bats for their breeding.

Mr Chapman suggests that tree felling protocols only be mandatory for trees greater than 80 centimetres in diameter.

Roosts also occur in trees smaller than this, and in at least one forest, which is actually that one that Mr -- a study that I was involved in that Mr Chapman refers to, actually none of the trees were greater than 80 centimetres in diameter; they were all less than 71 centimetres. Thus I would prefer that the VRP be applied to all trees that are potential bat roost trees, between 15 centimetres and 80 centimetres EBH. However, I would be happy for this condition to state that the VRP should be applied to this trees at the discretion of a supervising bat ecologist. This is because a supervising bat ecologist must already have been certified by DOC as competent to assess whether trees are potential bat roosts or not.

Based on my evidence, and my evidence-in-chief, I remain firm in my recommendation that felling of high-risk trees must be strictly limited to the summer months; that is, October to April. Rather than the current wording in the ELMP, which hasn't been changed or revised in the latest version of that, that ideally the trees should not be removed in winter.

Lastly, Wildlands have pointed out there is no longer a requirement in the ELMP to discuss with DOC or a Council nominee the process for removal of any active bat roosts, beyond experts employed on the project. I share many of the concerns expressed

by Wildlands in its supplementary and earlier reports. Wildlands expressed concern that radio tracking of bats is no longer intended, meaning bat habitat is not identified. Wildlands agree that excluding all vegetation under 80 centimetres EBH from VRP checks will expose long-tailed bats to risk or injury -- or death due to tree felling. Thank you.

THE COMMISSIONER: Thank you.

MS ONGLEY: Sir, I'm sorry to interrupt, but before you proceed with questioning, I'm conscious that Mr Allen doesn't have the odd pages, is that still the case, Mr Allen?

MR ALLEN: Yes, but we can carry on.

MS ONGLEY: You're happy with that?

MR ALLEN: Yes.

THE COMMISSIONER: I think we can certainly get Mr Allen a copy of the full pages. Look, I am also looking at timing and lunch, and these sorts of things, Ms Ongley. I think the programme shows that, you know, you have the floor through to about 3.00 pm --

MS ONGLEY: Yes.

THE COMMISSIONER: -- and then we have got some other witnesses coming at 3.15 pm. We have four more witnesses after Dr O'Donnell, I think?

MS ONGLEY: Yes.

THE COMMISSIONER: So probably are going to have to take a short lunch. Is your preference to take lunch now, and come back at 1.15 pm, or should we finish with Dr O'Donnell?

MS ONGLEY: I'm happy to hold over further questioning of Dr O'Donnell, if he has any, and take lunch now and come back.

THE COMMISSIONER: Yes. I think that would be better, it is getting, you know, into lunchtime now. So if we could just take a shortish lunch and be back at 1.15 pm please?

MS ONGLEY: Yes.

THE COMMISSIONER: And I will have some questions then. Thank you.

(Adjourned until 1.15 pm)

THE COMMISSIONER: Thank you, Dr O'Donnell, let us get back into things. I was interested in your opinion in your paragraphs 10, 11 and 12, you challenge Mr Chapman's suggestion that there is only 1 per cent of the long-tailed bat habitat would be destroyed in paragraph 10 and then you go on to the other extreme I suppose in your paragraph 12 that felling of some breeding trees during road construction might see extinction of Mount Messenger bat population. So are you that far apart, 1 per cent to total extinction, I just do not think that is --

DR O'DONNELL: I mean the level of uncertainty to me all revolves around where the bat roosts are. Mr Chapman's evidence suggested there were bat roosts on the alignment and, if that is the case and those trees are destroyed, the bat population then could go extinct and that is because, even though people see there are lots of trees in the forest, only a really tiny proportion of them are suitable for bats to breed in. I sort of cover that in my main evidence that things like they require a certain temperature in the roost cavity to raise their babies in and probably in one of the studies we did we showed that only

about 1 per cent of trees even have a cavity that might fit that sort of definition.

So it is not like if you chop down a tree and the bats fly away, they do have to find somewhere else to live, but they will find sub-optimal habitats probably because the roosts are so rare, they know, the colony has probably used them for hundreds of years for those bigger older trees. I have not lived long enough to monitor how long our bats have, doing the studies I'm doing, but they are certainly using the same trees after 25 years in the studies that I am involved in. So that is why it could be catastrophic.

So the other end of that, if there are no roosts on the alignment, then it is more a case of the habitat being taken out and that would have a moderate effect on the bat populations because we're losing their feeding habitats. So somewhere in between is what may or may not happen with this project.

THE COMMISSIONER: Do you think, and perhaps I should have asked Mr Chapman, was his 1 per cent based on just the project area or the wider habitat?

DR O'DONNELL: I have no idea how he might have come to that figure. I can't imagine how he could have calculated it.

THE COMMISSIONER: I will have to have a look back at his evidence. All right. Paragraph 3.9 of your evidence-in-chief, NZTA's bat management framework, this is this long document I think you have appended to your evidence?

DR O'DONNELL: That is right, yes.

THE COMMISSIONER: 200-and-something pages, yes. So has that, in your view, been followed by NZTA in this project?

DR O'DONNELL: Only to a degree really because if they followed it in proper sequence from the, let's say, "avoid impact on bats", then I would have done, at the earlier stage, work out what the actual impacts on bats would be. Then there's all sorts of sort of technical variations on that, not following the same framework that I covered in different paragraphs of my evidence. But earlier you were asking about the MOU between DOC and NZTA and I was on the steering committee to develop this framework. The framework was contracted out. So I certainly have a belief that we went into it to create a framework that we could all be happy with and move forward into the future with.

THE COMMISSIONER: All right. That was fine. Paragraph 3.14 of your evidence-in-chief, this is page 12 and 13, you suggest here, and I think you've covered it in your statement as well, your summary statement, the possibility of utilising this North Taranaki, North Waitaanga Forest area. So were you involved in discussions with NZTA during the period, which I was asked to adjourn the hearing in June, and provide time for some more discussions?

DR O'DONNELL: I have been involved only in discussions internally that I understand were taken to NZTA. I think other witnesses here attended those.

THE COMMISSIONER: Was that possibility of that as a different PMA area discussed during those discussions, do you know?

DR O'DONNELL: Yes, it was.

THE COMMISSIONER: It was, okay. Is Mr Inger going to talk to me about that a bit more I think?

DR O'DONNELL: Maybe.

MS ONGLEY: We are not really going to talk too much about those discussions for without-prejudice reasons, unless NZTA is happy with that.

THE COMMISSIONER: Okay. If you weren't involved in those discussions I cannot ask you anyway.

DR O'DONNELL: I did recommend that area.

THE COMMISSIONER: So it came from you as a possible --

DR O'DONNELL: It also came from DOC in the Taranaki office, so we have talked with them about suitable areas and I evaluated our bat database records to see where there were other bat records in the region that indicated there was a significant operation and it would be worthy of management.

THE COMMISSIONER: Has that had the studies, the acoustic studies, in that area?

DR O'DONNELL: There's also been radio tracking as well, so we do know where there's a few roosts. It was an older study, 2000-and-something, so we at least have an area of forest that

we know there is lots of bat activity and we know that there's one or two roosts from a very short study.

THE COMMISSIONER: That was done, okay. I just wanted to ask you again about the catching and tracking of bats. In your 8.8 of your evidence-in-chief you talk about these 60 bats that you tracked over three summers and you suggested when we had the discussion earlier on about whether there was some further bat trapping and studies to confirm the size of the PMA that might be okay, but that would need to be shown. Those 60 bats that you tracked, were they all caught in one season and then tracked over three years or were they --

DR O'DONNELL: No, in that study I was working by myself, so I was doing about an equal number each summer.

THE COMMISSIONER: Okay, so you actually trapped about 20 a year?

DR O'DONNELL: Yes. I could have trapped more but I just didn't have the stuff really.

THE COMMISSIONER: Stuff to put on them. Okay. I had a discussion about the predator-free 2050 programme that the

Government has announced and Ms Ongley suggested I might talk to some of the witnesses about that. Given the values in the nearby Parininihi area, do you think that would be a high priority to be continuing with pest management as part of that overall programme? Could you perceive an area like that dropping off given the current Government's pest-free 2050 programme?

DR O'DONNELL: Yes, I guess I don't know, because I actually don't know about the values of that site, but I imagine it is an important site and some intention to carry on I'm sure.

THE COMMISSIONER: Carry on with that, yes, okay. I take it you have not had a chance to really familiarise yourself with the new conditions around the Ecology Peer Review Panel and those types of things?

DR O'DONNELL: No, I haven't had time to.

THE COMMISSIONER: So I think if you could feed in to any conditions looking at those through the process we have talked about. So that is all I have as questions. Thank you, Dr O'Donnell.

Ms Ongley, maybe we were going to report back about conditions, discussions you might have had over the lunch break and Mr Allen might be able to update me as well. Have you come to any conclusions?

MS ONGLEY: I have not discussed it with Mr Allen, so I can update you now though.

THE COMMISSIONER: Yes, thank you.

MS ONGLEY: The difficulty is, it is not just one person sitting down, it is having to get feedback from all the experts on different conditions, so I would like until Monday and then to provide Mr Allen with our set of conditions and that would be Mr Allen and then we would present on the Thursday if that is all right with you and then that would enable a set of conditions to be produced with our comments.

If it would be helpful, I can provide on Friday a list of issues, but I do not think we can get it done by Friday unfortunately.

THE COMMISSIONER: Mr Allen, do you have any comments?

MR ALLEN: Given the circumstances, if we can get it on Monday we can then look at the conditions and that will give us the ability to have wording that we can focus on, which will be very helpful, and we can then respond to it in closing.

THE COMMISSIONER: So you would have Tuesday and Wednesday to look at it and respond in closing. I note that Thursday looks to be a reasonably busy day and we do want a report back from the District Council and the Regional Council planners. It is probably quite a good time to ask about what sort of reporting are you expecting; will I be hearing just from the planners or will we have some experts to present information as well?

FEMALE SPEAKER: I am intending on having Wildlands staff here. Mr Doherty may have some comments in writing or be here, so if you can give me direction on that.

THE COMMISSIONER: So Mr Doherty might be talking about the route alternatives issue?

FEMALE SPEAKER: Yes, and the shoulder and tunnel.

THE COMMISSIONER: Okay. So I think if he is going to present on that I would prefer him to give me a statement that he can

then actually present that. Certainly, given the discussion around the ecology conditions and the fact that this is a three-way discussion, I do think I will want to hear from Wildlands, particularly there as are two versions of conditions circulating around and they have their views on those as well, so I would like to be able to speak and have maybe a summary presentation from Mr Shaw or someone else from Wildlands as well.

FEMALE SPEAKER: That's the plan.

THE COMMISSIONER: Okay. So, look, Mr Allen, I think the best thing we can say about Thursday is that might be a pretty busy full day. I am reluctant to programme any time over on Friday but if we cannot get through we might just have to be a bit flexible there.

MR ALLEN: Certainly we have Friday free so it may be optimistic that both counsel go through in 45 minutes, especially if witnesses are going to present new evidence.

MS ONGLEY: I was going to offer that, if you wanted to come the night before, then the DOC presentation on the conditions could occur at 9.00 am because I notice it starts at 10.30 am. But that is just a possibility.

THE COMMISSIONER: I will just check when I am actually coming up that day so we can make some decisions now I think. That is on the 16th. Yes, I think that will be useful, so, Mr McKay, if you can organise for that Thursday to be amended so we have a 9.00 am start, starting with the Department presenting on its conditions version, and that will give us the best chance of getting through today. But I will make sure my flights are flexible so if we have to stay over we can do that.

Is that enough on the conditions and hearing management I think?

MS ONGLEY: So it is a 9.00 am start on Thursday?

THE COMMISSIONER: 9.00 am start on Thursday and we will have to issue an updated schedule.

All right, thank you, and back to you, Ms Ongley.

MS ONGLEY: Thank you. My next witness is Mr Duirs.

THE COMMISSIONER: Thank you, Mr Duirs.

MR DUIRS: I am a Senior Environmental Planner with Wainui Environmental Limited. My role includes overseeing erosion and sediment control management on high risk earthworks projects in the North Island. I am currently engaged by the Waikato Regional Council to undertake compliance monitoring of a number of large-scale earthwork sites in the Waikato region. I have gained significant experience in erosion and sediment management on large-scale earthworks projects throughout New Zealand in my 15 year career including on a number of NZTA projects.

Consent Conditions. For reasons set out below, I support the inclusion of: prescriptive conditions regarding erosion and sediment control design and management specifications; and requirement for continuous turbidity monitoring at both upstream and downstream locations and on sediment ponds.

In addition, I recommend that these conditions should be updated to include: requirement for continuous monitoring data to be made available to both TRC and key stakeholders including DOC, either by weblink or similar means, so that the performance of the site can be assessed remotely as an added means of transparency and compliance monitoring; and a requirement for specific ecological response measures to mitigate for any identified adverse sediment effects.

Erosion and Sediment Risks. The application proposes significant construction earthworks through very challenging terrain, with complex construction methodologies, at an isolated location and with high value receiving watercourses.

In relation to the ecological values associated with the site receiving waters, I rely on Dr Drinan's evidence that these have significant values. I consider that these activities present a high risk for adverse erosion and sediment effects within these receiving waters.

Although the earthworks area and volumes are less than some of the other NZTA Projects seen around the country, such as Transmission Gully, Huntly Bypass, Puhoi to Warkworth, the four-year timeframe is the same duration as the construction programme for some of these larger projects. Mr Ridley says this timeframe allows for an appropriately and carefully managed and controlled process. We appear to agree. The timeframe reflects the care that will need to be taken, for example the need to complete discrete areas in stages because of the challenging, complex and high-risk nature of the project site and activities.

Mr Ridley refers to a number of other NZTA roading projects which are much larger and have been constructed through challenging terrain and environmental conditions. I consider that an earthworks project does not have to be significant in scale to present a risk of adverse erosion and sediment effects. I have observed many smaller scale sites where adverse effects have arisen. Furthermore, I have also worked on a number of these types of large-scale roading projects and despite best endeavours to implement best practice erosion and sediment management, have observed adverse sediment discharge effects occurring both due to the practical limitations of these management measures to effectively treat sediment runoff during all conditions, as well as the complete failure of these measures resulting in direct sediment discharges into receiving environments.

I maintain that in this instance due regard must be given to the high value, largely intact headwater stream ecosystems that will be directly impacted by these activities, which I consider to be relatively unique when compared to other large-scale roading projects undertaken within New Zealand.

For these reasons I maintain that the project presents a high risk for adverse erosion and sediment effects.

Erosion and Sediment Management. I do not agree with Mr Ridley that one can conclude that the increase in sediment is unlikely to be detectable or that the erosion and sediment effects of the Project will be negligible.

I generally consider the applicant's proposed erosion and sediment control methods to be reflective of best practice methods typically implemented for large-scale earthworks projects in New Zealand. However, I consider there are challenges for these best practice erosion and sediment control measures to be implemented effectively at all times, particularly through the central portion of the site.

Effective treatment function cannot be guaranteed. Erosion and sediment control measures typically comprise temporary/rudimentary measures constructed by an earthworks contractor with limited geotechnical engineering design or construction oversight. I do not consider that the application documents include any specific geotechnical design or testing requirements additional to other large-scale earthworks projects that provide an increased level of assurance that the risk of failures will be avoided.

I concur with Mr Ridley that there are times when diversion channels or silt fences may not perform as expected and can overtop. These occurrences will result in the direct discharge of site sediment runoff into receiving environments with no form of treatment. In addition, I consider that failure of sediment control devices is a reality that does occur particularly on steep constrained sites during significant rain events and can result in significant adverse effects.

Potential Sediment Effects. The applicant's calculated sediment yield equates to a significant increase in sediment volumes entering water bodies immediately below the site.

The exposed earthworks surfaces will result in significant increases in the volume and velocities of runoff from the site compared to the existing forested catchments which currently buffer runoff effects through their canopy cover, leaf litter layers and undulating ground conditions.

I consider an increase of 46 per cent in the small Mangapepeke Stream is a significant increase in sediment.

Sediment monitoring and mitigation. In my evidence I refer to the applicant's Construction Water Discharges Monitoring

Plan, which outlines proposed sediment control performance and receiving environment monitoring measures to test whether specific triggers are being breached and, if so, proposed measures to remediate any ongoing issues.

Considering the high risk nature of these activities in terms of adverse sediment effects and the high quality ecological receiving environments, I have recommended the use of continuous water quality monitoring systems to assess site performance and water quality impacts. This is on the basis that continuous monitoring provides the most robust and accurate method for: assessing the effectiveness of site sediment control measures throughout a storm event to determine compliance with the specified triggers; and to determine the impact of site discharges upon water quality within the receiving watercourses.

The applicant has now updated their CWDMP to include provision for continuous sampling at downstream locations directly below the earthworks in each catchment with the data collected to be assessed against pre-works baseline data. I question the ability of only using two continuous monitoring units downstream of the works - with this data to be assessed against historic baseline data - to provide an accurate and realistic method for assessing compliance with the site

performance triggers during a storm event. In particular, the ability to assess this data rapidly and accurately against historic baseline data from a storm event of exactly the same magnitude, seasonal and catchment characteristics.

To ensure that peak sediment runoff effects and appropriate responses are captured and implemented, I maintain that implementation of continuous monitoring at both upstream and downstream locations within both catchments provides the most accurate means to assess compliance with the triggers and to quantify the water quality effects of the activities.

In the absence of any specific ecological mitigation measures being proposed by the applicant to account for the potential adverse sediment effects of the project that may occur, I recommend that an appropriate ecological mitigation response should be provided if adverse sediment effects are detected within downstream environments.

Responses to date have been limited to feedback loops for the continuous improvement of erosion and sediment control measures and further monitoring in the Mimi Swamp Forest. However, Mr Hamill now agrees that there is a gap in the feedback between ecological monitoring and any response.

I understand that Mr Hamill proposes independent reviews of ecological monitoring and a response if the project ecologist considers that effects are moderate or greater.

I am encouraged that the applicant has now proposed a feedback loop for ecological mitigations should adverse events occur. Dr Drinan comments further on this further including the additional ecological monitoring proposed in the updated CWDMP and ELMP documents. I also refer to Dr Drinan's evidence for possible mitigation responses. I agree with Dr Drinan that any response should be additional to the extent of habitat enhancement proposed by the applicant for direct habitat loss/impacts. I agree with Dr Drinan that the choice of measure and timeframe would appropriately be determined in association with the Ecological Review Panel and TRC. Thank you.

THE COMMISSIONER: Thank you, Mr Duirs. Before I ask you some questions, I would like to ask Mr Allen a question about documents. Apart from the conditions and the ELMP, is the applicant working on updates to other management plans such as the CWDMP?

MR ALLEN: My understanding is all the other updates are done and the ELMP has been updated as per Monday.

THE COMMISSIONER: All right, okay.

MR ALLEN: So it is certainly --

THE COMMISSIONER: Okay, thank you. All right, you are into conditions really, are you not, Mr Duirs, you are focusing on particular conditions and particular wording in the ELMP?

MR DUIRS: Yes, between the CWDMP and the ELMP. Dr Drinan refers more to the ELMP part of it; I am talking more about the Construction Water Monitoring documents.

THE COMMISSIONER: Okay, so in terms of where you think these documents, the CWDMP, and the conditions need to end up, you think there are some improvements that are needed that have not yet been agreed to by the applicant?

MR DUIRS: That's correct. I think my evidence-in-chief refers to the TRC conditions and supports the wording of the TRC conditions, particularly around the continuous monitoring.

THE COMMISSIONER: Yes, so that was really my only question for you that the TRC conditions, are those the ones that we have seen dated 30 July?

MR DUIRS: Yes, I believe those are the conditions.

THE COMMISSIONER: And you agree, if they are implemented, that would be --

MR DUIRS: Confusion over dates, 30 July, they were the ones attached to the supplementary report rather than the initial 42A report.

THE COMMISSIONER: That is right, yes.

MR DUIRS: I believe the updates include the maintaining of the requirement for the continuous monitoring.

THE COMMISSIONER: Yes. So if that was agreed to by me and those conditions were inserted that pretty well covers your concerns?

MR DUIRS: The next step I suppose is that link from that monitoring to the ecological monitoring in the response, but I

guess that is where Dr Drinan is going to carry on from my evidence in regards to how that would transition.

THE COMMISSIONER: And he has some specific suggestions about conditions for that, has he not?

MR DUIRS: I believe he has.

THE COMMISSIONER: Yes, all right. So I think, on that basis, I think your evidence is clear and that is all I have, thank you very much.

MS ONGLEY: The next witness is Dr Drinan. I am just going to bring up something else. This is a figure from his evidence that I have just brought up on the screen there. It looks very technical.

THE COMMISSIONER: I was going to ask him some questions about that.

MS ONGLEY: It is not a test.

THE COMMISSIONER: Good afternoon, Dr Drinan.

DR DRINAN: Good afternoon, Commissioner. I am a freshwater technical advisor with the Department of Conservation. The first point, the Project has the potential to affect pristine, or close to pristine, forested aquatic habitats harbouring numerous biota of high conservation value. I consider that there are major shortcomings of the application with respect to mitigating adverse effects on these freshwater biodiversity values. My evidence also comments on conditions that I believe would be required if consent is granted.

The SEV - stream ecological evaluation - is a useful tool for assessing streams in terms of their ecological function. It is not appropriate for assessing biodiversity values. The Environmental Compensation Ratio or ECR is calculated using a formula based on a predicted decline in SEV score at the impact site, and the predicted increase in the SEV score at the mitigation/restoration site. The inclusion of the multiplication factor of 1.5 in the ECR calculation accounts for the time lag and uncertainty of potential outcome.

That is effectively what the slide is showing, so you are balancing the loss of value at your impact site plus the gain, so the loss of .38 of a score at your impact site, you are balancing that with a gain in .22 of a score at your

compensation site. As you can see from the ECR calculation is a logical formula, you multiply by 1.5 multiplication factor, which is based on the time lag on the event of outcomes and that gives you your ECR, which tends to infer the site in question then has an effect. So that's how the ECR works.

In this case, Mr Hamill's own surveys confirm that the headwaters of the Mangapepeke Stream and the Mimi River catchments are of significant biodiversity value. The waterways of the area provide habitat for rare and at-risk taxa of notable conservation value. This includes kākahi, longfin eel, giant kōkopu, īnanga and redfin bully, all having a conservation status of "at risk - declining", as well as a number of other species. In addition, the New Zealand freshwater fish database lists further species recorded in the Tongaporutu and Mimi River catchments including the shortjaw kōkopu, which is threatened - nationally vulnerable, kōaro, at risk - declining, and the giant bully. All ten of the freshwater fish taxa recorded are diadromous, meaning that they migrate between freshwater environments and the sea during some part of their life cycle.

I undertook a spatial analysis using the Freshwater Ecosystems of New Zealand, commonly referred to as FENZ, and I did this to assist in understanding the value of the Tongaporutu

River and Mimi River catchments and effectively this places them within the context of environmentally similar catchments, so you're kind of comparing apples with apples. This showed that we can expect the Tongaporutu River, and to a lesser extent the Mimi River, catchments to have significant conservation values throughout.

In my evidence, I refer to an extensive body of literature highlighting the importance of headwater streams. A recurring theme throughout much of this research is that headwater streams play an important role in actively sustaining biodiversity across many stream sizes, and probably contribute disproportionately to biodiversity at the river network. These studies include, but are not limited to, that of Mr Brian Smith in 2007 regarding the Mokau River catchment; Mr Hamill's surveys for this Project also confirm that the headwaters of the Mangapepeke Stream and the Mimi River catchments are of significant biodiversity value.

The SEV method is based on 14 ecological functions. Although three of these functions relate to biodiversity provision, two of these three are recommended to be excluded from the calculations of the ECR. In the guidelines that go with the SEV method, the reason stated is effectively due to the

difficulty of predicting these outcomes, and that is the difficulty in predicting biodiversity outcomes. This refers to the difficulty in predicting a biodiversity response based on functionality alone, for example the effects of shading from canopy cover.

Therefore, if the SEV guidelines are adhered to, only one out of 14 functions relate to biodiversity provision, that being riparian vegetation intact. The method does not incorporate the following measures of biodiversity: (a) diversity, distribution and population size of aquatic species and taxa; (b) their conservation status; (c) their habitat requirements for stages across their life cycle; (d) ecosystem representativeness, irreplaceability, and ecological integrity and context.

Mr Hamill attempted to address this issue by including the two biodiversity functions recommended to be excluded from ECR calculations. These are invertebrate fauna intact and fish fauna intact. That approach is not recommended in the SEV guidelines, for good reason, and does not resolve the issue with applying the guidelines to high value aquatic environments.

I recommend applying a multiplication factor for headwater streams, which has been derived from the applicant's aquatic macroinvertebrate data.

I also recommend applying an SEV post-impact score of zero for culverts. I consider the main incentive for designing culverts is to provide for fish passage and not for what the SEV score would be achieved within the culvert from the habitat.

I calculate an additional 2,581 m^2 would be required due to my recommended multiplication factor, and an additional 1,893 m^2 would be required due to my approach of assuming an SEV post-impact score of zero for culverts, so in total this will come to 4,474 m^2 extra. I note in Mr Hamill's rebuttal evidence and speaking notes that an updated quantum of compensation is being proposed in terms of area, which equates 11,536 m^2. While I accept this falls short of what I recommend by 1,091 m^2, it is a considerable improvement.

I consider that the exact length and area of restoration should be finalised upon detailed construction plans on the basis of this methodology; that being a multiplication factor and a SEV post-impact score of zero for culverts. I share the concerns of Wildlands in their supplementary report at section

2.16.8 that the total stream length to be restored cannot be confirmed until the offset reaches are known and assessed and it is important that tributaries earmarked for restoration purposes do not have indigenous woody vegetation along their riparian margins so that there is a clear benefit as a result of restoration works.

Fish passage. I commend the applicant for replacing culvert 12 with a bridge, removing the need for culvert 19, and for refining the design of seven of the culvert structures based on the recently released New Zealand Fish Passage Guidelines. I refer to that later as NIWA Guidelines so that is the same document. Twelve of the 19 culverts are not being designed to the standard set out in these guidelines, but rather in general accordance with NZTA Fish Passage Guidance for State Highways. This is currently reflected in the applicant's proposed consent conditions. I support the Taranaki Regional Council Officer's proposed consent conditions that diversions and culverts shall not restrict fish passage or, alternatively refer to NIWA 2018 guidelines, including monitoring. I remained concerned with Mr McEwan's evidence that the minimum design standards in the fish passage guidelines may not be achievable for some of the culverts due to the steep grade.

Fish Recovery/Rescue Protocols. I recommended changes to the fish recovery/rescue protocols. In my opinion, measures to prevent the stranding or desiccation of aquatic biota are low-hanging fruit. These adverse effects are generally easiest to avoid with minimal effort and greatest certainty. If streams are only partially dewatered I could accept Mr Hamill's approach allowing fish to voluntarily leave a stream as water recedes. I recommend an approach of netting and electric fishing be undertaken.

Potential effects of adverse sedimentation events. Regardless of the likelihood of occurrence, the adverse effects of sedimentation devices failing could be catastrophic for some aquatic communities. An adequate response should be provided for. My evidence recommends triggers for additional aquatic ecological monitoring and Mr Duirs's evidence recommends turbidity monitoring. Mr Hamill agrees that there is a gap in the feedback between the annual/biannual ecological monitoring and any response. These details are to be contained in the ELMP rather than the consent conditions. This process details that if there are ecological effects from construction activities, which are assessed as moderate or greater by the project ecologist, this will then be reviewed by a suitably qualified independent ecological reviewer and recommendations be presented

to the applicant and TRC to agree upon an appropriate course of action. Without any proposed triggers for what ecological effects would be considered as moderate or greater, or involvement of the Ecology Review Panel, I cannot support those conditions, although they are an improvement.

My evidence suggests appropriate triggers and that, if thresholds have been exceeded, the consent holder should undertake mitigation works, which should include sediment removal procedures and/or additional biodiversity offsets. Just to clarify that is in addition to the known loss of habitat. The choice of mitigation measure, the quantity of mitigation, and the timeframe within which it will be implemented, should be determined in conjunction with the Ecology Review Panel and TRC. These mitigation responses should similarly apply to the sediment deposition monitoring of the sediment plates at the Kahikatea Swamp Maire Forest.

THE COMMISSIONER: Thank you, Dr Drinan. Just on the conditions, let us start there because that is where you are finishing up, in your --

(Break in audio)

-- recommended that amendments additions to resource consent conditions, starting at page 59, covering a range of matters. You get into quite a lot of detail with some of those suggestions. I'm presuming that when we see the condition suggestions from the Department of Conservation on drafting that you will have actually turned those suggestions into condition drafting so I can actually assess those; is that the concept?

DR DRINAN: Yes, that will be the intention.

THE COMMISSIONER: Also, I see just in your paragraph 16 about Mr Hamill saying that he will be updating section 8.5 of the ELMP. I note, just from the version I've been given as an update, there is one addition, which I will read out, to the reporting requirements. So that is assessing the overall impact of the project on streams negligible through to very high:

> "If the assessment results and the effects from construction is moderate or greater, the reporting will identify any additional monitoring and mitigation required to ensure the effects are in accordance with the designation of the resource consent."

So, that is the sort of condition you were thinking about but I am presuming, and I have not looked at the ecology review panel, that would have to go to someone and there would need to be a process in the ecology review panel process to actually identify

exactly what was done from there. Is that how you see that process working?

DR DRINAN: Yes. One point with that is that there is that layer which would be if an effect occurs and it is of a magnitude sufficient that it does need mitigation or is deemed to need mitigation, then that will be between the ecology review panel or TRC to determine what the appropriate course of action would be. However, I also have concerns as to what the threshold or limits would be for that to actually have to occur in the first place.

So, in terms of if there was an adverse sedimentation event that had an impact on the fauna of some of these streams, what exactly is meant by a moderate effect. So that is the part that I cannot support in its current format.

THE COMMISSIONER: So what would you suggest conditions should say instead of that?

DR DRINAN: Well, I have provided numeric limits in paragraph 146 of my evidence-in-chief, which I think offer a far greater degree of objectivity with regards to assessing and quantifying effects which includes a decline in the QMCI score, which is a

quantitative measure of the macro-invertebrate communities so they are a very useful bio indicator tool and they are quite easy to sample. So if that score declines by 1.5 or more, relative to a control site, and also a decline of >20 per cent insensitive invertebrate taxa and it has always been having a tolerance or MCI score of ≥5. So, they, in my view, would provide a far easier and more objective measure of what would constitute an adverse effect that requires mitigation.

THE COMMISSIONER: You would see those actually written into the conditions, Dr Drinan?

DR DRINAN: Yes. These have been used elsewhere.

THE COMMISSIONER: Elsewhere in Taranaki region?

DR DRINAN: From memory I think it was the Pūhoi to Warkworth conditions had them in as well. I will have to confirm that but I think that was the consent conditions that they had them in.

THE COMMISSIONER: All right, thank you. So, again, back to your summary statement condition 5, you have not actually studied these streams yourself, have you, Dr Drinan, you have

looked at the evidence from Dr Hamill and then looked at some databases?

DR DRINAN: Yes.

THE COMMISSIONER: So this is your assessment of --

DR DRINAN: Yes, I was involved in the site walkover as well back in August, I think, of last year. With regards to the point number 5, the FENZ database, it was borrowed from Dr Neale's evidence that it is maybe not as discerning with regards to biological type. I only used the FENZ database to actually, like I said, frame the catchments and group them into similar catchments environmentally so that you could actually compare apples with apples.

That FENZ database actually was more of a context setting whereas the MCI values that I used to derive the multiplication factor and quite a bit of other detail, with regards to the conservation value of the systems and how I came up with that, was based on the detail and data collected and provided by the applicant.

THE COMMISSIONER: All right. So you relied on that for that.

DR DRINAN: Yes.

THE COMMISSIONER: All right. So, turning to the culverts and the SEV post-index scores, I asked both Mr Hamill and Dr Neale about this when they gave me evidence. You know, they have told me that it does, in their opinion -- I think Mr Hamill uses a .23 factor. You are saying it should be zero.

DR DRINAN: Yes.

THE COMMISSIONER: Mr Hamill showed me some videos of fish swimming up culverts with various baffle types and those sorts of things. Is it your evidence that while culverts might be able to be organised for fish passage, they essentially have zero biodiversity value in their own right? Is that why you are giving it a score of zero?

DR DRINAN: Yes, based on the culverts being proposed for this project. Not all culverts are the same. If you have quite high tall box culverts that are quite short, that mimic natural stream conditions, then you will have more likelihood of retaining some level of biodiversity. However, the information provided by Dr Neale regarding culverts having comparable macro-

invertebrate communities within the culvert, relative to outside the culvert, you know, once it has been daylighted, that also shows that there is a considerable difference. You know, there were some animals found within the culvert but they were of much lower value and much lower tolerance scores relative to what was found outside.

Furthermore, the macro-invertebrate communities generally of this site, at least the upper, more high quality sites, were dominated by a lot of sensitive mayfly, stonefly, caddisfly taxa, and in that study referred to by Dr Neale none of these taxa were found within the culverts. So, in terms of the biodiversity value, I'm not saying that there is no biodiversity within the culvert, you know, fish will swim through these things, they might take up residency for a little while but in terms of their capacity to support biodiversity in the long-term I feel they should be given a score of zero.

THE COMMISSIONER: All right, thank you. Your paragraph 12 is where we are sort of down to the results of things. Your position is that there is a shortfall of 1,000 m^2 roughly in terms of your calculation. That is sort of in the order of 10 per cent difference. It is a considerable improvement on what was proposed but --

DR DRINAN: In terms of how it was reported, yes.

THE COMMISSIONER: Yes, but you still think it is not quite enough. So, again, that is a difference of opinion between, I suppose, three experts in this case.

DR DRINAN: Yes. You are right to mention that this is a rather subjective method. It is a vast improvement on how it is reported so it is quite a considerable movement from the 8,153 m^2, I think, which was reported earlier in some of the documents provided. So I am much more comfortable with the figure that is arrived at here.

THE COMMISSIONER: Okay, thank you for that. Again, just going on to your paragraph 13 in your summary statement. I take it what you are suggesting is that the final stream length that is restored should await final construction drawings and then assess those against the final chosen restoration areas and then come up with a number; is that what your paragraph 13 is suggesting?

DR DRINAN: Yes. So with the SEV you actually do require the restoration sites to be known and confirmed because, as you can

see, the calculation is entirely dependent on where you are going to undertake your, in this case, riparian planting. So if you do not have that confirmed, effectively that right-hand side of the formula is unknown, which is contrary to what is recommended in the guidelines. However, in this instance, it is my understanding, based on Mr MacGibbon's - I am going to say - rebuttal evidence, that all bar 2.3 km of the 8.45 km of stream have been agreed to be used for riparian planting, therefore, there is a shortfall of 2.3 km, give or take, where that side of the equation is still not known.

So that is one aspect where I think it still needs to be confirmed. But also I get that this is a large project and things may change as detailed design kind of evolves throughout the project. So I suppose my interpretation and my recommendation is that a figure is included in the consent conditions such that it should not be any less than that amount, but that at the final stage of construction, when the known effects and the known length of stream and area of stream has been calculated and quantified, then you can undertake this assessment with more certainty and you would actually get a more accurate representation of what has been lost and relative to what has to be restored to offset that loss.

THE COMMISSIONER: So do you agree that to implement that through conditions framework would require a reasonable amount of sophistication around drafting?

DR DRINAN: No, I think I actually have given a wording within my evidence-in-chief. I will try and find it here. It is effectively going to be X square metres of stream will require compensation. So that, as a minimum, with the intention that the calculation will be redone, the SEV in entirety, once the known and actual stream losses.

THE COMMISSIONER: And that could then be confirmed back against the hard conditions. So, you know, I am very reluctant to have moving conditions and targets so I think you would have to be quite clear about what the obligation was in any consent conditions.

DR DRINAN: This would be quite common for a project of this scale. I could imagine that things will change and design will change as it progresses so I think that is a reasonable and a pragmatic approach for both the applicant to accept that things do change. There might be more effects in one area, there might be less effects in another area as things progress during

construction. So, that gives them that flexibility to change the offset that is required.

THE COMMISSIONER: All right. So we will look at what comes up in the different conditions versions there. So I look forward to that. Look, in terms of fish passage you refer to the TRC officer's proposed consent conditions, in paragraph 14:

> "That diversions and culverts shall not restrict fish passage."

I think I heard from Mr Hamill that there were two culverts, very high steep culverts where that might not be able to be achieved. Is the reality that there are some locations of culverts, because of gradient and proximity, that you are just not going to be able to meet that in every single circumstance, or do you think fish passage can always be maintained?

DR DRINAN: With the use of culverts with high gradient and reasonably long length you always run a very high risk of impeding fish passage, at least for some species or proportions of some species. There is a hierarchy within fish passage whereby there are other options, apart from culverts, which could be used. Natural stream conditions would be such, in this area, that only certain species would be able to get up some of

these high gradient reaches in any case. But even those species have limits to what they are capable of if you were to increase the water velocity within a culvert. If that exceeds the swimming potential of a given fish then they are obviously not going to be able to get up there.

The issue I have with the high gradient culverts is that I think the applicant proposes they are going to use the minimum design standards, which is based on hydraulic conditions, and that design standard also assumes that substrate will be retained within the culvert to effectively break up some of that kind of homogenous fast laminar flow. That would be quite difficult, I suspect, on steep gradient culverts, which is what Mr McEwan was referring to in his evidence. I suspect it would be very challenging for long-term fish passage to be provided there based on gradient and length alone.

THE COMMISSIONER: So you think some exceptions would be reasonable when it is just too difficult?

DR DRINAN: Yes.

THE COMMISSIONER: Okay, thank you. My last questions, Dr Drinan, are around the fish recovery rescue protocols.

Again, Mr Hamill has a different opinion to you. He is concerned with damage to fish with invasive electric fishing and things like that. Again, you are suggesting a higher level of effort with fish recovery on the streams when they are being dewatered; that is essentially your evidence?

DR DRINAN: Yes. I am just asking for more effort to be put in to avoid, in my opinion, an easily avoided effect or at least an effect that can be mitigated substantially more than what is proposed by Mr Hamill.

THE COMMISSIONER: Yes, and I think in your evidence-in-chief you do not agree with him that there will be risk of damage to fish of any great amount.

DR DRINAN: Yes. Electrofishing is a method that is used internationally. Nationally it has got national guidelines. I could not hazard a guess as to how many different organisations use this technique. Training is required. These machines have settings where you can change the frequency of the pulse, you can change the amplitude, things like that. So it is a very safe method when used correctly. Of course Mr Hamill is correct, if you use anything incorrectly you have the chance of having adverse effects.

However, I have undertaken fish recovery and rescue myself on a number of projects and I have seen what can happen when limited effort is applied. And I feel, especially considering the benthic nature of some of these species, so things like tuna and bully, they tend to be a bit more -- you know, with disturbance events they will tend to go for cover more so. So a common bully, I would imagine, would -- you know, if a stream was being dewatered they would seek refuge under rocks or large wooded debris, things like that and that is the last you may see of them if you are just depending on voluntary leaving.

Such an approach for voluntary leaving might be suitable for things like trout, more fusiform kind of pelagic species that do tend to scare and move. But there are no trout found in these catchments, or none have been recorded so I thoroughly recommend more effort should be applied to these native fish, and kākahi and kōaro. One thing with fresh water mussels is that they are actually quite easy to miss even though they are a reasonably sized animal; their habit, their modality of living is such that they are within the substrate.

I have spoken with one of New Zealand's experts on this who has made the point of -- at this point actually is going to be

publishing a study that shows how difficult and how variable detection rates are for some of these populations so that it is effectively quite easy to miss them, especially if you were to dewater and expect effectively a sessile species to move. You know, that runs the risk of these species drying out which can stress them. These are an at risk species that are not honestly doing very well nationally throughout New Zealand. So I consider that is an adverse effect and a high risk of an adverse effect that does not need to be taken.

THE COMMISSIONER: Right. So, look, thank you very much, Dr Drinan, that is very helpful.

DR DRINAN: Thank you.

MS ONGLEY: Dr Barea is next, sir.

THE COMMISSIONER: Thank you. Good afternoon, Dr Barea.

DR BAREA: Good afternoon. I would like to start by just making one small correction to my EIC.

THE COMMISSIONER: Thank you.

DR BAREA: Paragraph 4.65.

THE COMMISSIONER: Yes.

DR BAREA: I refer there to a grid size of 100 metres by 150 metres. That should be 100 metres by 50 metres.

THE COMMISSIONER: Okay, thank you.

DR BAREA: All right, thank you. I will proceed with my summary.

THE COMMISSIONER: Thank you. Is there a copy there for Mr Allen?

DR BAREA: I am a technical advisor advising DOC with respect to biodiversity offsetting. I also represent DOC on the advisory group to the international biodiversity and business offsets Programme and I also lead the Kōkako specialist group, which is the recovery group.

In response to an increasing number of proposals involving offsets, DOC led a cross-government department initiative to develop biodiversity offsetting guidance commencing in 2009.

The intention was to ensure that solutions addressing residual effects are ecologically sound and demonstrably result in no net loss or net gain.

No net loss: Claiming no net loss can be viewed as a gold standard approach to addressing adverse effects. No net loss needs to be demonstrated - and that is a term that I will refer to again - as being possible prior to its delivery. This is important so that decision makers and other stakeholders have confidence in relying on the claim. In my evidence I commend the applicant for proposing pest control in perpetuity. I also commend Mr Singers for using the accounting system model developed for DOC of which I was a co-author.

Under this model, in order to balance losses and gains, biodiversity is translated into a currency. The currency used by Mr Singers was ecological integrity or EI. EI represents a particular ecological measure of condition for browse intolerant elements of forest types and the related wider ecosystem function that related to those browse intolerant species. This provides the basis for exchange and describes how much of what is being lost and gained.

I have concerns regarding the transparency of the input values used to generate EI values used in the model. How the data was used to calculate EI has not been documented or provided with the offset calculation. This means that the offset calculation is not repeatable by anyone other than the person developing it because future EI values cannot be generated and compared with those representing pre-construction EI. This creates a difficulty with repeating the calculation in 10 - 15 years time to verify whether no net loss was achieved. This is more than academic because transparently demonstrating no net loss can be achieved, ie not assuming no net loss, or opining that it will occur, and then verifying its achievement in the future is at the core of biodiversity offsetting.

I also consider it critical to understand that the model does not, and was not intended to, apply over all biodiversity values of the project. EI does not cover the area of forest lost; Mr Singers' calculations involve an offset implemented in an existing forest. EI does not cover individual components because different plant species may be traded in this model. EI does not include measures for fresh water values, wetlands, long-tailed bats, birds or other fauna. In many cases there is insufficient baseline data upon which project ecologists can conclude no net loss would be achieved. For example,

Mr Chapman's claim of a no net loss and possibly a net gain outcome for long-tailed bats is unsupported by any quantitative assessment or comparison of losses and gains. That is not surprising because the applicant has not obtained data that could be used in such a manner and, therefore, cannot demonstrate no net loss for long-tailed bats.

Mr Singers has developed a separate and specific currency for the kahikatea offset based on canopy cover because kahikatea does not respond positively to browser control. Overall I am comfortable with the offset design for kahikatea canopy cover. Mr MacGibbon outlines 9 hectares of restoration planting to account for loss of, primarily, mānuka tree fern scrub, mānuka succession, tree fern scrub and mānuka scrub on a one-to-one replacement ratio, and for the loss of exotic rush land on the Mangapepeke flood plain on a 0.5 to 1 ratio. I do not support a one-to-one ratio or a lower one such as the proposed 0.5 to 1 because it does not account for time lags and assumes 100 per cent success.

Accordingly, I support the recommendation in the NPDC officer's report for a 1 to 2 ratio for all restoration planting within the AWA. Mr MacGibbon states that up to 3,400 seedlings, representing 200 seedlings of each of 17 significant trees, will

be planted in the designation or immediately adjacent to it. I have concerns regarding certainty of that outcome given no assessments of the suitability of planting sites and their location nor performance measures have been provided.

Environmental compensation: In my opinion the applicant should abandon its proposed biodiversity offset and present the package as environmental compensation. Well-designed environmental compensation can achieve beneficial outcomes for the environment, however it is critical that any environmental compensation is additional to what would have occurred in the absence of the application; that is the additionality principle. The remaining offset principles, other than no net loss, are also relevant.

Mr Singers re-ran the offset model to reflect the updated restoration package, the size increased from 1,085 to 3,650 hectares. I acknowledge that successfully managing pests to the specified target levels will provide increased benefit over the initial proposal simply due to the increased area, and I support that with the exception of long-tailed bats.

Adequacy of environmental compensation: I agree with the performance targets proposed and the application across the

whole PMA. I consider it important that these targets be explicitly stated in the conditions for increased certainty rather than in the ELMP which can be modified. I maintain a similar view that all performance measures for the full range of management actions should be contained within conditions for the same reason. The ELMP can then provide flexibility for meeting them. The timing and frequency of pest control performance monitoring must be capable of providing an accurate understanding of whether pest target levels are confidently met, in particular given the challenging topography of the PMA.

If consent is granted I support requiring monitoring to follow DOC best practice or equivalent established best practice methods approved by NPDC in consultation with DOC. Mr MacGibbon outlines proposed monitoring for vegetation with target performance outcomes of 75 per cent of tagged palatable individual plants in the browse tier of the Recce plots, showing no sign of animal pest browsing within five years after the completion of road construction, and refers to an adaptive approach to management if pest performance measures are not met. In that case:

> "The pest management methods and intensity will continue to be adapted until all pest density targets and biodiversity indicator targets have been met."

That is a quote from his evidence. The NPDC officer's report also comments on this matter in paragraph 115. I support the condition 25(b) proposed by the NPDC requiring a quantitative assessment of forest condition and tree health including a canopy measure, eg the Foliar Browse Index, and an understory measure, eg Seedling Ratio Index. This should include the PMA to provide a baseline for vegetation outcome monitoring. Appendix F to the ELMP also shows an area to the south-west and south of the Parininihi pest management area, the area coloured pink, as part of the PMA. This area essentially has no effective buffer, notwithstanding the nearby Parininihi management area. Its small size, shape and isolated nature means that re-invasion across the entire area will be an on-going problem.

While I generally agree with the adaptive management concept, the ELMP needs to incorporate a clearer process for adaptive management and input by the ecology review panel. The ELMP also needs to provide for an ecology review panel with a function beyond pest management, eg fauna outcome monitoring, rather than the narrow proposed pest management review panel. The function of the panel should also include reviewing a revised ELMP and ecological report provided to council and

making recommendations to council based on those reviews. I understand some of that might have been addressed in recent updates.

Fauna: The long-tailed bat is critically endangered. In situations where uncertainty is high and the level of conservation concerned of affected biodiversity is also high, it is good practice to ensure that proposed management actions provide a high level of confidence that intended outcomes are realised. There is insufficient detail on the monitoring and reporting of bittern during the construction period. I rely on Dr Burns in that respect. There was a lack of detail around biosecurity provisions around restoration planting, as stated by Mr Edwards.

I also recommend that because there is a possibility that kōkako may move into the construction area, that a consent condition requiring a kōkako management plan be prepared in consultation with DOC and certified by NPDC. The purpose of a kōkako management response will be to provide for the detection of kōkako in the construction area during the construction period, immediate notification to the New Plymouth DOC operations manager, if detected, and avoiding disturbance to any kōkako pairs and nests detected during the October to April

breeding season. Just in that respect I am not asking for a separate plan, that could be a section within an ELMP.

Overall I am of the view that the proposal offered by the applicant does not currently adequately address residual adverse effects in a manner that provides confidence for the maintenance of biodiversity in the Mount Messenger area. If a consent is granted it is my view that all performance measures should be contained in consent conditions rather than in the ELMP, which, in my opinion, contains too much uncertainty to be relied upon in its current state.

Thank you.

THE COMMISSIONER: Thank you, Dr Barea. I suppose I do have just some clarifications from you around this no net loss issue and how it might be applied to ecological effects and biodiversity generally.

Dr Barea, my understanding is that it is quite difficult to apply that terminology and apply any sort of accounting process to ecological values over and above vegetation. Vegetation, there seems to be acceptance that you can use this type of process and accounting model and be able to account for no net

loss. But as your experience and evidence sit outside of vegetation it becomes increasingly more difficult unless you have a vast amount of information. Is that a fair summary?

DR BAREA: It is not so much about the type of biodiversity it is about whether it can be detected and counted and measured. So, you could follow a biodiversity offset process for kiwi, for example, because they can be counted, or their abundance is just by an index, and they are responsive to management. And you can, again, measure that difference. So, for any species that you can count and that is responsive to management, and that implies we know how to manage it and you can measure that gain, you could do a biodiversity offset approach. So, I would say it is not restricted to vegetation.

But there are many situations where biodiversity offset approach is not appropriate and it is not just about whether you can count them or not it is about whether effective management is available and there are other factors around irreplaceability and the age of ecosystems that are impacted. For example, in this case the offset, as I explained in my EIC, was really aimed at a subset of values within the forest, and that recognised that other values in that forest are not off-setable, for example, old mature forest types, and that is appropriate. And

that is partly why this project results in a net loss of forest, in terms of the area, of just under 20 hectares that cannot be offset via this process.

In short it is not restricted to vegetation it is about whether it can be measured.

THE COMMISSIONER: Measured, yes. But in resource management terms it is useful for these sorts of projects to be talking about offset and compensation, that is inevitably -- we are going to be always looking at a mixture.

DR BAREA: That is my view. I think in New Zealand, in particular, the nature of our biodiversity and uniqueness of it means that there will be many instances where no net loss cannot be demonstrated and it is that demonstration that is critical to the biodiversity offset concept. In recognition that there are many situations like that, I think most applications that propose a biodiversity offset will be a mix of the two or maybe in some cases all compensation.

THE COMMISSIONER: Yes. So your view is we should be thinking about all of this as compensation in a strict sense?

DR BAREA: In this case I do because the intentions around the offset, I think, were really good.

THE COMMISSIONER: Good, yes.

DR BAREA: I have no problem around that and I commend Mr Singers for using that model. But the problem is that, in generating the EI values, and a value might be say .45, you cannot follow that back to the measures on the ground; you cannot actually disentangle how that value was created and to measure the achievements of that offset in the future. In the context of EI, as it was developed by Mr Singers, it cannot be done again. So, that could be remedied by going back to the original data and creating that link and including it as a record for the future, or the offset could have been quantified rather than creating EI as a surrogate for the underlying biodiversity, which would have been to include the actual measures themselves that you would have got out of plot data.

Then those become the comparison data in time. Because that cannot be demonstrated, essentially the claim of no net loss cannot be measured in 10 - 15 years time in the same way that the offset was calculated.

THE COMMISSIONER: Yes, but there must have been some data and some calculation method that could have been written down.

DR BAREA: Exactly.

THE COMMISSIONER: If it was written down and it was repeatable that would solve your problem.

DR BAREA: I would not have this problem, yes.

THE COMMISSIONER: But it has not been written down, is that the --

DR BAREA: I have not seen the original; I do not know. There is another factor that because the whole PMA and the core area, which relates to the proposed offset which is now about 900 hectares, because the management is exactly the same across the whole 3,650, the offset kind of becomes moot because the type of gain, notwithstanding differences in ecosystem types, you would expect to be similar across the whole area. So, in essence, there is no real need to have it there, in my view.

THE COMMISSIONER: All right. So, just following through on the offset compensation discussion, you say in paragraph 8 of your summary here that:

> "The remaining offset principles, other than no net loss, are also relevant."

I had a look at those because you have put those in paragraph 3.6 of your evidence-in-chief, and it seems to me that those all seem to be factors that have at least been thought about and factored in in some degree by the applicant.

DR BAREA: I am not intending to suggest they have not I am just trying to clarify that in a compensation framework, these principles add value to good outcomes.

THE COMMISSIONER: Yes. So you are not contending that they have not been looked at. Because when I looked at them I thought well, yes, there are elements of the proposal that definitely touch on most of those principles.

DR BAREA: Yes, I think so.

THE COMMISSIONER: Whether we call it compensation or a mixture; it is somewhat academic if you just say we are looking for

compensation and we will call it that. It does not really change the outcome particularly.

DR BAREA: It does not change the outcome because the outcome is related to the management. But what is different is the demonstrating of no net loss and the applicants proposed a goal of no net loss in their application. So given that, if you are going to make that claim you should have a robust process that can demonstrate that, rather than rely on an assumption of no net loss because you are managing a big area. There is no robust process leading from the loss to the intended outcome in terms of gain. There is not even a simple loss and gain table.

THE COMMISSIONER: So I think what you are saying to me, and correct me if I am wrong, is that by going from, say, 1,085 hectares to 3,650 for the PMA and saying because we have got a big area, that definitely guarantees no net loss across the board. There is no connection there, in your mind, that can be demonstrated.

DR BAREA: I am saying there is no process that demonstrates no net loss but I am accepting that there would be significant gain in biodiversity values. It just has not been quantified, you know, balanced in a quantitative manner that shows no net loss

for the values contained within a currency. But by no means do I downplay the benefits that can arise from a compensation approach.

THE COMMISSIONER: Yes, and it seems to be quite a substantial offset. Like, that PMA, to me, with a project this size seems to be, again, looking at the evidence, outside of the bat number, which clearly there is a difference of opinion because of the lack of information. It seems to be or I have heard some witnesses talk about it being adequate and some of the other ecology area's invertebrates herpetofauna, it is definitely going to provide the necessary gains.

DR BAREA: Yes. I think the spatial scale of management, given that management will be successful in meeting the pest level targets and that is going to be challenging. I think that the gains are commensurate with the adverse effects and I am comfortable with that. But also I am not comfortable with relying on Dr O'Donnell around the bat issue. I have stated in my evidence that there are still residual adverse effects around a loss of forest area that needs to be considered. There is 19.85 hectares of forest that is a permanent loss to the project.

THE COMMISSIONER: Is that always going to be a permanent loss or could that be compensated in some way, in your view?

DR BAREA: Well, I think it could be. I guess we will talk a little bit hypothetically. If NZTA had access to some of the land north of the project that is farmed and contains indigenous scrub, regenerating indigenous vegetation, simply by fencing off areas and removing stock and allowing successful processes to occur, you could provide for that in a compensation manner.

THE COMMISSIONER: All right. Where are we? Look, let us move then to the concept of the ecology review panel and the adaptive management approach, and this is a theme in your evidence-in-chief. I think you are quite supportive of the ecology peer review panel process for a project like this.

DR BAREA: Yes.

THE COMMISSIONER: The applicant has had various names. I think it is now back to being called the Ecology Peer Review Panel.

DR BAREA: I see that.

THE COMMISSIONER: With a broader membership and scope. But you still have some concerns about some of the conditioning around that and how that cross-references to the ELMP. Is that your position or have you had a chance to look at the updated conditions on the ecology review panel?

DR BAREA: I have not had a chance to look in depth at the updated conditions. I have glanced at the updated ELMP; I still see some language in there that does not provide confidence or certainty, I should say, which is why I say performance measures should be all within conditions and that allows an ELMP to have some flexibility on how those are met. I do think the ecology review panel should have a role in commenting on a draft ELMP but also I understand that NZTA, or the applicant, are seeking to have that accepted at the hearing process.

One area, which we will address in our conditions comments, is that currently the panel's role is described as reviewing reports but its critical role is to not only do that but make a recommendation to council and obviously the council can choose what it does with that. But with the type of expertise that would be on that panel, I consider that it is helpful to council that it make recommendations, in particular around adaptive

management and pest control because it is a challenging area to manage both in terms of spatial scale and topography.

THE COMMISSIONER: You would accept that there are some limits in how third parties can work within conditions and certainty and all those types of things. So, again, that will come down to drafting and careful thought between the council --

DR BAREA: Yes, well, there is precedent for that type of function within an ecology review panel and the Waverley Wind Farm recently was one.

THE COMMISSIONER: Which wind farm was that, Dr Barea?

DR BAREA: Waverley Wind Farm and maybe HMR.

THE COMMISSIONER: Yes, I think we were looking at that. All right. Can I just ask you about the kōkako management plan? How far away from the project site are the kōkako? I think I have had evidence about that but --

DR BAREA: I think it is in the realm of maybe 4 - 5 km, I think.

THE COMMISSIONER: Yes.

DR BAREA: But that is within the distance that, looking at other kōkako translocations that have occurred recently, some individuals can move that kind of distance quite quickly. So what I am asking for is not anything onerous it could probably be done in two or three pages within the ELMP. What it really does is formally document a process in the event that kōkako are found.

THE COMMISSIONER: Is there an example that you could pull out and suggest?

DR BAREA: Not for kōkako but there are around other species that are known to be within other development projects, in some mining exploration projects. But I do not see it as being onerous it is a simple flow process if the birds are detected breeding. I agree with Dr Burns that it really centres around whether the birds are nesting. If they just happen to be moving through or they are just there temporarily then I think they will move off.

THE COMMISSIONER: All right. I think those were the things that have come through. I will just check your evidence to see whether I had anything else for you.

DR BAREA: Could I make a comment on Predator 2050?

THE COMMISSIONER: Yes, you could. Yes, thank you.

DR BAREA: I agree with Dr O'Donnell in what he said. But I also just note that that was a political initiative and the length or longevity of that programme is uncertain and unknown and certainly not one that the department has control over. So in the context of the pest management in this project being in perpetuity, I would struggle to think that Predator Free 2050 would be seen in a similar temporal context. But I agree with Dr O'Donnell that the values there will be considered high and would probably come into the decisions and considerations about where Predator 2050 resources were spent.

THE COMMISSIONER: All right, thank you for that. Condition 4.52 of your EIC, I am looking at page 23. I had a discussion with Mr Roan about my preference that actual performance measures are in conditions rather than in management plans. I think the pest species targeted and the performance measured in

your 4.52, those are the sorts of things you think should be in the conditions as hard conditions?

DR BAREA: They are.

THE COMMISSIONER: Are they in the conditions now or are they -- I could not actually see those, I had a quick check.

DR BAREA: I think they will be in the draft that we provided.

THE COMMISSIONER: As performance conditions in the conditions?

DR BAREA: Yes, along with others around some of the other management actions.

THE COMMISSIONER: All right, thank you. Your change from the 150 metre grid to 50, is there anything that you would change in your evidence in 4.65 with that change?

DR BAREA: No, that was just --

THE COMMISSIONER: That was just a factual --

DR BAREA: That is a typo.

THE COMMISSIONER: Typo change.

DR BAREA: It was always intended to be that.

THE COMMISSIONER: Yes. Looking at the clock and everything else I think I had better finish up there otherwise we could go all day, Dr Brea, but thank you very much for your evidence it has been very helpful.

DR BAREA: All right, thank you.

THE COMMISSIONER: Thank you.

MS ONGLEY: Mr Inger is my last witness.

THE COMMISSIONER: Yes. Thank you. I think we should just finish with Mr Inger and take a break then. Are there any other submitters in the audience ready for this afternoon? It does not look like it. We do have -- let us have a look here. Is Mr Cloke here? He is not here yet.

Mr Cloke, is that you arriving? Thank you. Just to signal we are running maybe 20 minutes, half an hour behind time. So, just bear with us it will be great, thank you.

MR CLOKE: No problem at all.

THE COMMISSIONER: Yes, thank you. Mr Inger.

MR INGER: Good afternoon.

THE COMMISSIONER: Good afternoon.

MR INGER: NZTA has undertaken consultation with DOC on the Mount Messenger bypass project. My own involvement with consultation on behalf of DOC began in August 2017. On 8 August 2017 I attended a site visit together with other DOC representatives. During the site visit NZTA explained to us that two route options, out of a total of five short-listed options, were favoured and being considered. We were shown some parts of these alignments.

One of the two options that was being considered by NZTA at that time was referred to as "Route P1" and it was located west of State Highway 3 through the Waipingao Valley. The other

option under consideration was referred to as "Route E1" which was east of State Highway 3. DOC's feedback to NZTA was that both options would have significant adverse ecological effects but that DOC's preference of the two options was Route E1 over P1. This was due to the DOC ecologists' collective views that the ecological values west of State Highway 3 were higher than to the east of State Highway 3.

Route E1 was subsequently chosen as the proposed alignment via NZTA. Between August 2017 and June 2018 I participated in regular, typically fortnightly, joint working group meetings comprising NZTA and DOC representatives. I have participated in three workshops arranged by NZTA which were attended by DOC and NZTA staff. I also assisted with facilitating some of the one-on-one meetings held between NZTA and DOC technical experts, which provided a forum for conferencing of the key ecological issues in contention; that was alongside Mr Roan.

I consider that the consultation that has been undertaken by NZTA with DOC has been appropriate and helpful. It has assisted to resolve some, but not all, of DOC's concerns that were raised in the submissions. Some of the remaining concerns have been addressed following the applicant's supplementary and rebuttal evidence. It is important that all of the agreed

matters are captured in conditions should the NOR and resource consents be approved.

Assessment of issues: I have recognised, in my evidence, that the project will have clear social and economic well-being benefits. I have read the AEE, the NPDC section 42A report and the applicant's evidence regarding the project's benefits and I consider that they have been comprehensively described. I agree that the benefits of the project are important in terms of consideration of the objectives and policies in part 2 and I generally agree with the applicant's assessment of them. I have undertaken a broad consideration of the relevant objectives and policies as part of my review.

Notwithstanding that Dr Brea considers that the term "no net loss" is not applicable to environmental compensation, I support the intent of the applicant's proposed objective. I consider that the general intent of the applicant's restoration package is consistent with the objectives and policies that I have identified as being relevant from the various statutory documents. Some objectives and policies in the Regional Freshwater Plan and Regional Policy Statement seek to maintain and enhance various freshwater and biodiversity values. There is similar wording in the New Plymouth Operative District Plan,

including "preserve and enhance" with respect to natural character of waterways, and "sustainably manage and enhance where practical" with respect to indigenous vegetation and habitats.

The proposed offset compensation, the restoration package, is a key part of the applicant's proposal and it is referred to extensively throughout the AEE, ELMP and the applicant's ecological evidence. However, the evidence by some of the DOC ecological witnesses, which I rely on, identifies some required changes to the restoration package to address some of the project's residual or adverse effects. That is particularly the case with effects on long-tailed bats. Because some of the project's adverse effects cannot be avoided, remedied or mitigated, in my opinion a critical consideration for the decision maker in determining whether the NOR and resource consent applications should be approved, is whether benefits from the restoration package will be commensurate to the nature and scale of the residual adverse effects.

If the decision maker is satisfied that this will occur then in my opinion the "maintain and enhance", "preserve and enhance" and "sustainably manage and enhance where practical" provisions in the statutory documents could be addressed, as

could part 2 matters including section 5 and section 6(a) and 6(c) of the Act.

Following receipt of the applicant's rebuttal evidence, Dr Drinan now has a higher level of confidence that the riparian planting proposal will appropriately compensate some of the residual freshwater effects. Both Dr Drinan and Mr Duirs still have some remaining concerns regarding freshwater effects due to the stream works in erosion and sediment. However, if suitable robust conditions are imposed then I now consider that the project works may be able to be undertaken in a manner that achieves overall consistency with the objectives and policies that relate to freshwater matters and natural character in the Regional Freshwater Plan, the Regional Policy Statement and the New Plymouth District Plan.

Based on Dr O'Donnell's evidence on critically endangered long-tailed bats and his assessment of the bat management measures contained in the applicant's current restoration package, I consider the project works will be contrary to objective 16.2, policy 16.1 and policy 16.2 in the New Plymouth District Plan and BIO objective 1 and BIO policies 1 - 3 in the Regional Policy Statement.

The applicant has sought to achieve no net loss of biodiversity for bats but Dr O'Donnell does not consider this objective will be achieved due to the significance of the project site for bats, the high level of effects and inadequacies with VRPs, vegetation removal protocols, and the pest management proposal. In that regard the current proposal will not achieve the purpose of the Act in section 5, nor will it recognise and provide for the protection of areas of significant habitats of indigenous fauna in terms of section 6(c).

I note that the applicant and both of the reporting officers have all considered part 2 matters in their assessment of the NOR and TRC resource consent applications. I have taken the same approach. I reach the same conclusion following consideration of the proposal in terms of the relevant planning documents and part 2.

Management plans: Management plans will set out the key methods for managing the project works and effects. The DOC ecology witnesses, the NPDC reporting officer and Wildlands, as NPDC's peer reviewer of the ELMP, all consider that the ELMP contains some deficiencies which require addressing prior to final approval to the ELMP being given. Mr Duirs also has some

remaining concerns with the - I have put CWMP there it is actually the CDWMP.

THE COMMISSIONER: I am sure you are right.

MR INGER: I am sure you will forgive me for getting confused.

THE COMMISSIONER: So give me that again, I will just write it in.

MR INGER: I had CWMP, it should be corrected to CDWMP.

THE COMMISSIONER: Yes.

MR INGER: Which he seeks some changes to.

I consider there are some issues that may prevent the final approval of the ELMP being given now. These include the lack of confirmed certainty of the locations for the pest management area, riparian planting and the predator excluded lizard area, and the absence of details of the location of kiwi fencing following pre-construction monitoring. These are key matters that the ELMP addresses but it currently does so based on preferred rather than confirmed locations for the PMA and

riparian planting, and without details of the specific locations for the predator excluded lizard area and kiwi fence. The ELMP will need to be updated with these details once they are confirmed and it should then be subject to a certification process.

The ecological assessment submitted with the AEE and the DOC evidence both identify that the proximity to the impact site and the ecological characteristics, in terms of vegetation and habitat, of the area are important considerations for choosing the offset and compensation sites. All of the applicant's evidence appears to be based on the PMA being in the location identified as the preferred option shown in Appendix F of the ELMP. The reference to the site as a preferred option suggests the location could change. Condition 32(b) in the applicant's most recent suggested designation conditions states that, "The exact location of the PMA may change over time".

There is no criteria in the conditions suggested by the applicant for determining the suitability of any alternative sites in the event that the preferred PMA is not pursued, nor do I recall any evidence from the applicant which assesses the potential change in ecological outcomes if the PMA is moved from the preferred location, either at the outset or at a later date.

Whether the PMA is able to be established in the preferred location appears to still be uncertain. The applicant's preferred location for the PMA includes land that is located partly outside the proposed designation boundaries, which is owned by the Pascoes and Ngāti Tama.

I consider that it is important that there is either certainty that the preferred site will be available for the purpose intended, in perpetuity, or confidence that there is a suitable alternative if it is not. The ELMP recognises that stream restoration should be located close to the area affected and in similar environmental conditions. In addition, Dr Drinan's evidence sets out that confirmation of the compensation site is important because it may have high ecological values that cannot be improved upon or, conversely, it may have low ecological values that are not amenable to significant improvement in ecological value.

Mr MacGibbon's rebuttal evidence states that agreements are yet to be reached with landowners for approximately 2.3 km of stream length for riparian planting. If the NOR and resource consents were to be granted then I consider that specific locations for the PMA and riparian planting should be referenced in the designation and resource consent conditions with

certainty of legal protection of those areas in perpetuity and no flexibility to move the PMA at a later date. The DOC ecological witnesses have also identified a number of other issues with the ELMP in their evidence which required changes to the buffer provisions in the Pest Management Plan, the vegetation removal protocols in the Bat Management Plan, the fish recovery and rescue protocols and the stream monitoring and remedial actions process for sediment events in the Freshwater Ecology Management Plan, the biosecurity measures for invertebrate pests in the Biosecurity Management Plan, provisions for bittern and kōkako and restoration planting ratios.

Conditions: If the resource consents are granted and the NOR is accepted then I consider a number of changes would be required to the conditions that have been suggested by the applicant.

I just note when I say that, I have not had an opportunity to review the latest version so I am referring to the previous version there.

I consider some of the key matters to include: (a) additional or alternative measures to avoid, mitigate or

compensate for adverse effects on long-tailed bats; (b) additional biosecurity measures for invertebrate pests; (c) measures to detect and address the management of bittern and kōkako; (d) increase planting ratios for restoration planting; (e) measures for freshwater effects including updated riparian planting area requirements and a clear response process for unforeseen sediment discharges and suitable riparian planting. The details will need to be clearly stated in conditions; (f) specific conditions requiring the CDWMP to address requirements for upstream and downstream continuous sediment monitoring; (g) more detailed requirements should be included in conditions rather than relying on details being contained in management plans. Examples are pest management targets, site selection criteria for the lizard enclosure and details of the location of the PMA and riparian planting; (h) a suitable process for certification of management plans, including provisions for an ecology review panel to review the ELMP, changes to the ELMP and adaptive management requirements; (i) I consider that disputes or disagreement on management plans between the consent holder/requiring authority and the council should not be determined by a binding decision by a mediator, and; (j) use of terminology such as "where feasible", and I site an example in TCV9, is inappropriate.

I could answer any questions.

THE COMMISSIONER: Thank you, Mr Inger. Your paragraph 3 talking about discussions between NZTA and DOC. I think Ms Ongley said that you were involved in the latest discussions but there were some without prejudice limitations about what you could say.

MR INGER: I actually was not personally.

THE COMMISSIONER: You were not?

MR INGER: So there were other people within DOC. I was involved in internal meetings, I guess, that fed into those.

THE COMMISSIONER: Internal meetings, okay.

MR INGER: But I was not directly involved in those discussions.

THE COMMISSIONER: All right. Also, it was suggested that you might have another concept in terms of some DOC land that could be used as a backstop. Have you covered that anywhere? I cannot see that.

MR INGER: That is what I was alluding to at - I will just find the reference - paragraph 18 of my summary. So, I guess in terms of the last sentence there, my view on this would be that if there was not an alternative that there was a high degree of uncertainty that the outcomes, that the applicant is purporting to achieve, may not be achieved at all if the pest management area fell through.

So, I am still considering exactly how this might be reflected in conditions but my current view is that, obviously subject to NZTA agreeing to this, given that it is compensation and you are limited in terms of section 171 of the Act in terms of what you can impose, that the thinking would be that it might be, for instance, if this was the plan A site, the one that is up on the screen behind you, that the condition could reference that plan in a schedule with an alternative that if the land issues that I have raised here were to fall through, that there was an alternative essentially and a schedule 2 that provided the back-up.

THE COMMISSIONER: Yes.

MR INGER: I think that is a helpful suggestion for NZTA and it does give some certainty going forward. It also gives other

submitters and stakeholders certainty that the outcomes will be achieved. I think that is really important given how critical the compensation is to the overall restoration package.

THE COMMISSIONER: So, other witnesses for the department have referred to a specific area, a location of a forest. Through this hearing we have heard that and I think NZTA have heard that and if they would like to take that up as a backstop option that is up to them to look at, I think. So I think that is about as far as I can take that. But my understanding is that there is an area that the department has identified that would be suitable as a backstop.

MR INGER: We can expand on that, I guess, and extrapolate on it when we come back with conditions on Monday.

THE COMMISSIONER: Yes, that would be useful. So in your paragraph 7, you talk about you supporting the intent of the applicant's proposed objective. Is that the objective around the restoration plan -- the (Overspeaking) package?

MR INGER: It is essentially the objective around no net loss. As you have heard, Dr Barea has identified some issues with that from a technical biodiversity offsetting perspective. I think,

if it is not called "no net loss", because it does not constitute biodiversity offsetting, then it is essentially compensation that has a commensurate level of benefit to the values that are being lost essentially. So, I would not describe it as academic. I do not want to do disservice to what Dr Barea is saying, that is for sure, but I think what I am saying is I support the intent; I support the approach that is being taken overall.

THE COMMISSIONER: So the intent is agreed with certainly, it is just the ways and means and outcomes.

MR INGER: That is right.

THE COMMISSIONER: Thank you. Just your interpretation, in your paragraph 12, and again, your evidence I suppose paraphrases and draws on evidence from a number of the Department of Conservation witnesses and seeks to draw together the particular issues which I have found quite helpful. But were you saying here that Dr O'Donnell does not consider this objective will be achieved due to the significance of the project site for bats?

My take from the discussion I had with Dr O'Donnell was that if it could be shown, through tracking and where roost

trees were and the extent of the range and those sorts of things, he does not necessarily disagree that the PMA could do the job, it just has not been identified through physical tracking and measurements. So it might be acceptable but he is not convinced that there is enough information to guarantee that. Is that more how you would see that bat issue?

MR INGER: Yes. That could possibly say "the potential significance of the project site for bats" because, as you heard Dr O'Donnell talk about, we do not know how significant it is. He thinks, based on what he has seen, that it is significant but we do not know the roosts, where the roosts are, that sort of thing. So I guess when I was talking about the project site there I am referring more to the road footprint, the area that is being disturbed.

But absolutely, in terms of the pest management side of it, if we were able to know where the roosts were and the PMA that is being proposed was in an appropriate location relative to those, then my understanding is that Dr O'Donnell is comfortable that 5,000 ha would not be needed, you could have a reduced area.

THE COMMISSIONER: Yes, but there would need to be a process to demonstrate that, is what he was saying?

MR INGER: That is right, yes.

THE COMMISSIONER: You could condition that conceivably?

MR INGER: I think you could, yes. The only thing that comes into my mind around that, that Dr O'Donnell would be better to respond to, would be whether any lag because of -- if the applicant was to start to give effect to the consent and actually undertake the works, I am not sure whether any lag in undertaking the radio tracking, which might take a year, creates any issues in the sense that if the works are being given effect, or you're having an effect, does that lag then become critical. That's the only reservation in my mind but otherwise I think there's certainly some options around doing some radio tracking to determine where it is and I think you could condition that, yes.

THE COMMISSIONER: If it was shown to be adequate, that could just be locked in?

MR INGER: Yes, that's right.

THE COMMISSIONER: And if it wasn't the conditions could say you would have to move to a larger area?

MR INGER: Yes. My understanding is that there's a little bit more certainty with the Waitonga North because we do know that there are some roosts there, or Dr O'Donnell knows that from some studies.

I guess there is also a risk that if NZTA are starting to undertake radio tracking in the PMA based on the preferred site and didn't discover any roosts that there's obviously a further process and more time required to revert back to Waitonga North and potentially do some more radio tracking there but I think you write conditions around that, yes.

THE COMMISSIONER: And of course the bigger the area the more costly the pest management so there is a scale and degree here too, is there not?

MR INGER: Yes. I don't know the relative costs of radio tracking versus going to a bigger pest management area but I guess that's what NZTA might have to weigh up if they were considering that type of approach.

THE COMMISSIONER: All right, thank you.

Your list of conditions on paragraph 22, these are areas that you will clearly be looking at in terms of the condition drafting?

MR INGER: Yes.

MR INGER: And it is the conditions, both the regional version and the District Council's, you know, our conditions?

MR INGER: Yes.

THE COMMISSIONER: In both those management plans it sounds like you might have some comments on CD, WMP and the ELMP of that, is that my understanding?

MR INGER: Yes. There's certainly some issues I think with the management plans and I guess a decision needs to be made then whether the management plans are able to be updated now and approved through the hearing. I mean I have highlighted some of the issues in particular with the ELMP where I'm unclear I guess on what the process is intended to be around selection of some

of these sites for instance because I understand that they would have to be then subsequently incorporated into the ELMP but if it's being approved now it just seems to me that there's a bit of a mismatch there.

THE COMMISSIONER: But you will turn your mind to that. I think your paragraph 15 is where you talk about this. Your sense is that there's some uncertainty in there about the number of the elements that would need to be confirmed somehow by further review or certification of detail?

MR INGER: Yes, that's right.

THE COMMISSIONER: And that would need a process of some sort of certification to confirm that and whether or not the Ecology Peer Review Panel had some role in that?

MR INGER: Yes. I do see that they would have a role in that particularly because some of the issues that I've highlighted there relate to things like, you know, the riparian planting areas, whether they're suitable, the pest proof lizard enclosure. I mean I anticipate that the conditions would set out the objectives for that or the criteria to select that lizard enclosure for instance but there still needs to be a

process of review and certification once a site is preferred to confirm that it is appropriate.

THE COMMISSIONER: Yes.

MR INGER: And I would have thought that would be through the ELMP and through our certification if it is a final document.

THE COMMISSIONER: I suppose that is for everyone involved in the condition drafting. I will be looking very closely at the new reference clause around conditions and whether they are appropriate and therefore for Resource Management purpose, whether they're clear, whether they are certain, whether enforceable, all those sort of elements. When you're looking at these sort of processes where you are looking for certification processes there needs to be certification against something which needs to be measureable which is not always easy.

MR INGER: I agree.

THE COMMISSIONER: Yes, they have not had equivalent involvement in condition drafting and I will be wanting to look at those closely.

Okay, Mr Inger I think we've probably done enough for the moment. Thank you very much for your assistance.

MR INGER: Thank you.

THE COMMISSIONER: We will break --

MS ONGER: Sir, I just have one closing comment. May I ask --

THE COMMISSIONER: Yes, certainly.

MS ONGER: Thank you. My one comment is regarding the issues about whether you can drive conditions around radio tracking and the proposed PMP or PMA and/or making that area larger. So both of those would require the applicant to offer. So although of course we're going to come back next Thursday and talk about conditions, DOC's in that position at the moment where it can't ask you to grant consent with one of those conditions on, or both of them on, as alternatives because those require the applicant to offer.

THE COMMISSIONER: On an Augier sort of basis, it's their voir dire position.

MS ONGER: Yes, and because section 171, the new provision that's been inserted in there around offsetting and compensation says that it has to be offered.

THE COMMISSIONER: Okay. Well I am sure Mr Allen needs time for reflecting on that.

MR GERARD: Sir, that's exactly why we have our action and wording from DOC so then we can consider it and until we've got wording rather than lists of issues it's very hard for us to be able to respond in a substantive way to it.

THE COMMISSIONER: Yes.

MR GERARD: So hopefully on Monday we'll get some drafting and then we can consider and update the Commissioner on Thursday.

THE COMMISSIONER: Yes. Mr Gerard, I will have to signal that. It would be useful for your client to think about the sorts of options we have been talking about in terms of verifying the efficacy of that larger area for the bat issue, and if not, is there a backstop that could be applied?

I think looking at some of the recent case law around this we would need to have a reasonable level of certainty that we were not moving into an area that we could not demonstrate dealing with that particular issue, particularly around the bats so if you could have a good think about that, that would be good. Thank you.

Look, shall we break until 3.40 pm and then we will see with the other submitters. Thank you very much.

(A short break)

THE COMMISSIONER: Mr Cloke, are you the spokesman?

MR CLOKE: Yes, all of us are.

THE COMMISSIONER: Just come up, all of you come up. There are a number of submitters named here for this afternoon. Is there one submission covering each of the parties?

MR CLOKE: One submission for us all and the others will just talk to their expertise field.

THE COMMISSIONER: That is excellent, really appreciate you doing that. So the floor is yours, Mr Cloke.

MR CLOKE: I have got a broken down submission.

THE COMMISSIONER: I have a copy here.

MR CLOKE: Good as gold. Okay, good afternoon, Commissioner. I'd like to acknowledge the Iwi representatives here today, they are an important and respected part of the process.

It's also right to acknowledge the applicant and thank them for the excellent they have done to get us to this stage.

I am Tom Cloke, I have here with me today John Hickman, down the end, David Rogers, and I have apologies from Andy Stanley from Pacific Fuel Haulage and Murray Symons from Symons Transport. Both companies are involved in the transport of bulk liquids over the Mount Messenger daily.

I have been working in the road transport industry for approximately 50 years. Over the past 28 years I've been executive officer for the Road Transport Association servicing members of the heavy vehicle industry, trucks, buses, special

heavy vehicles like cranes and over-dimensional vehicles comprised of around 4,500 vehicles owned by about 200 local companies.

During this time I've been heavily involved in many roading projects, especially Mount Messenger and the Mount Messenger North to Awakino business case projects, investigated options to upgrade State Highway 3 to the north of New Plymouth for many years. Represented the industry on the State Highway 3 working party that was established by the Regional Council in 2002 in response to ongoing concerns about the route's security, safety and efficiency of the highway focusing on the section of road between New Plymouth and Pupū to the north.

I have also made useful input into previous roading projects in the region and input into the day-to-day highway maintenance and highway incidents such as crashes, slips, flooding issues that often occur on Mount Messenger.

THE COMMISSIONER: Mr Cloke, sorry to interrupt you but I have a different ...

MR CLOKE: I've just broken it down for you, sir.

THE COMMISSIONER: I have a submission ...

MR CLOKE: That's a bit easier for you to --

THE COMMISSIONER: Essentially you are talking around this?

MR CLOKE: Yes.

THE COMMISSIONER: No, that is great, that is fine, just keep --

MR CLOKE: We thought it would make it easier for you, sir.

THE COMMISSIONER: Got you.

MR CLOKE: If I could just invite John Hickman and David Rogers to introduce themselves and give a brief overview of their experience in the road transport industry. I'll start with John.

THE COMMISSIONER: Thank you.

MR HICKMAN: Yes, afternoon. John Hickman, 30 years in business in transport on my own, another 16-odd years learning the trade with other transport companies as a driver. I have a staff of

over 100 employees, approximately 20 trips over the mountain each day. That's as far as you want me to ...

MR CLOKE: Yes, that will be all right.

THE COMMISSIONER: Yes?

MR ROGERS: I am David Rogers. My profile is I hold a trade certificate in general engineering and intermediate certificate of engineering. 50 years in the transport industry, 25 as managing director of Clark and Rogers, executive member of the Western Central District's Couriers Association for 35 years. A member of the Institute of Road Transport Engineers for 30 years, a council member for the Institute for 25 years and president for 3 and currently a position as a transport consultant for Transport Investments.

MR CLOKE: Thank you. It's been long recognised for many years that Mount Messenger -- as far back as the 1920's -- is not fit for purpose especially when considering there is no alternative suitable route for heavy vehicles. It has steep gradients, tight corners, shallow pavements to name a few of the issues. The greatest issue if the route is unavoidably and regularly closed due to slips, crashes, many times trucks stuck on the

Mount due to lack of traction on the southern side due to continually wet.

No short detour, the one-way trip having to travel an extra 350 km through Wanganui to bypass the Mount when it's closed costing the trucking industry about $1,000 per trip. An average of 400 vehicle movements per day costing $824,000 additional costs to transport operators which most times cannot be recovered. The added cost is a round trip and cannot be done in any one due to the driving hour limits placed on truck drivers limiting them to 14 hours work per day and a one-way trip takes an extra 4 hours.

In the event the high productivity motor vehicles has created a variety of heavy vehicle tracking issues that the Government is currently attempting to resolve. While we mention those vehicles it should be recognised that even the standard motor vehicle combination suffers road issues on the current route. There is always going to be an imbalance between attempting to fit modern and efficient heavy vehicles on a

90-year old infrastructure. I know that you have driven over the Mount and would have noticed how little room there is for

vehicles to pass especially with trucks or buses or the larger vehicles or even those lovely campervans.

It is a well known fact in the trucking industry that maintenance operating costs are about one-third more going north than south. This is mainly due to many factors including fuel burn which David will cover off a bit later.

We see the new route will have huge benefits to connectivity, being shorter, travel time reduction of about six minutes for trucks, far more pleasant to drive, no more tight corners to negotiate, wide lane widths, tunnel size that can take an oversize load as big as a house to allow the industry for the first time in its life of a road north to transport oversized loads.

The new route fits with the Government's Safer Journey plans where every opportunity should be taken to increase safety, reduce travel time and improve transport efficiency.

I'll just ask John if he can just cover off the benefits of those over-dimensional vehicles going through there, sir.

MR HICKMAN: Thanks, Tom. So I've been asked to speak on behalf of the over-dimensional transport business and which will bring big savings and costs that will come with the proposed new road.

When we apply for an over-dimensional permit to transport loads the NZTA provide a list of conditions that all transporters must adhere to and as you can imagine the route has many bridges that require speed and the location on where to place the vehicle on each bridge.

An example of numbers is from Fitzroy to Hamilton travelling State Highway 3 and State Highway 39. The kilometres travelled is about 237 albeit a bit shorter with the new road. 23 bridges require BESS control, you know, bridge supervision and 9 bridges are "crawl central". The same load going south to Bulls and up State Highway 1 has a 592 km distance with 63 bridges requiring BESS control and 10 of those are "crawl central". It also needs permits from local council for the bypass at Marton and Te Rau which adds cost.

As in business, time is money so extra distance means a lot more man hours that come at a cost. The longer route means accommodation and meal costs to be added and it's times four for the truck driver and load pilots that go with the loads.

The driving hours impact on how far each load can travel. The new road will bring big benefits to the businesses that rely on road transport in to and out of Taranaki and businesses like the wool and gas and engineering companies and such will become more competitive with the shorter route.

The main part of my business is shifting Fonterra finished goods to the market and that business is well entrenched in Taranaki. The new proposed road will bring safer road with environmental and economic benefits that are long overdue for the Taranaki region and I hope you can give it support and get the project underway with urgency. Thank you.

MR CLOKE: Thank you. Environmental benefits, following our early comments about the new project design, especially lower gradients and straighter alignments, the project will reduce many of the environmental contamination issues the old route has now. Reduction in vehicle noise emissions, especially heavy vehicles, will not be under full load due to the lower gradients and lesser gear changes. Lesser tyre wear fragments due to lower gradients and straighter alignments, lesser break wear and reduction in brake contamination and brake dust, a lower

gradient, straighter alignments, safer route to drive and of course less fuel burn, David will cover off that in a moment.

I have visited the Huntly Express Project, 15 km of new highway. The reason for me visiting that site on many occasions was to see for myself the effect that a project of this size would have on the environment and see how stakeholders were able to work together for the national good.

The Huntly project has many synergies aligned to the Mount Messenger project. Wetlands to protect and create, cultural sites to protect, whenua considerations, DOC and conservation land transfers, fish and game considerations, land owner negotiations to purchase, used fields, used cuts, geological matters, ecological, sediment control all require a robust planning procedure. Everything about the Huntly project gives us so many learnings and protections, even a similar land type. They've done theirs successfully, I'm sure it can be done here.

I'll just get David to cover off on the fuel burn.

MR ROGERS: Yes. In support of comments in the original submission and TIL Logistics becoming a member of the climate

change coalition I take this opportunity to expand on the environmental advantages of the proposed route.

Using a calculator and formula to calculate fuel consumption and CO^2 emissions a heavy truck and trailer combination supplied by EKA and the Road Transport Forum of New Zealand, I've been able to calculate the CO^2 emissions that will be saved by building the proposed bypass.

Based on an average heavy vehicle combination weight of 36 tonnes -- now this is if you consider the maximum gross weight on the vehicles is up to between 57 and 60 tonnes coming through and average would be running at 50 or 46 tonnes and a stock truck and a large 'B' train has a tare weight of 18 tonnes, so you've got a significant weight movement all the time. So the existing route of 7.4 km with a gradient of 12 per cent the CO^2 emissions using those calculators will be 14.37 kg per trip. The proposed route of 6 km with a gradient of 7.5 per cent, the CO^2 emissions will be 7.7 kg per trip, a saving of 6.6 kg per trip.

Now in the TA published numbers of 500 heavy vehicle movements over the route per day, and the industry operates on a 24/7 basis, that would be 182,500 trips a year and if you

multiply that by the number of kilograms that gives us a saving in CO^2 emissions of 1,204,500 kilograms per year. This saving is a significant contribution to the improvement in the environment and taken together with the other advantages we stated, "I believe this proposed route should proceed for the benefit of the community".

MR CLOKE: Thank you, and I'll just summarise, Commissioner, if I may.

Community views on this project is very evident. On receiving over 1,150 submissions as you know most of those in support show the level of support for this project.

I have personally presented an overview of the project to many social clubs, groups, public meetings to date presenting to over 700 people, 4 more presentations to be carried out in the coming weeks so I can report all of these engagements have shown a high level of support for the project with only one negative thing being said, "Why the heck are we waiting so long for the project to get started, it is highly needed and long overdue".

Our final comment is, the Taranaki economy needs this project. People need to rely on a route that delivers improved

safety, incorporates total route security for the health and wellbeing of people, freight connections, tourism and in fact we all need a reliable, safe route north out of our province and into it. It's strategically important both locally and nationally, we need this fit for purpose new rout over Mount Messenger for now until the future.

The project in our opinion is the best thing that ever happened to Taranaki apart from the Barrett brothers -- I know you're a rugby fellow, at least I hope you are -- and the Waikato regions.

In closing I respectfully request, Commissioner, that you sign off on the consent and make this important project happen. I sincerely hope that in future I may happily reflect on this day knowing the process we have been invited to participate in has been a long lasting benefit for the region and the nation as a whole. Thank you for your time, sir.

THE COMMISSIONER: Thank you very much. Yes, no I am a typical kiwi bloke that follows the rugby and the Barrett's so thank you for that.

Okay. Thank you very much for that presentation and it certainly emphasises the key points in each of your submissions. I did have a question about the high productivity motor vehicles. Are these the larger, longer vehicles, 23 metre maximum 60 tonnes or 59 tonnes?

MR CLOKE: Yes.

THE COMMISSIONER: Generally travelling at around about 57?

MR CLOKE: Yes.

THE COMMISSIONER: And these require certain bridges and those sorts of things?

MR CLOKE: Yes. The bridges on that route currently will sustain that loading from Hamilton but they are route specific so there's only particular routes we can go. For example, we can't cross the overbridge in Otorohanga, we have to go through the bypass going both ways.

THE COMMISSIONER: Okay, but you can move between Hamilton and (Overspeaking)?

MR CLOKE: Yes, and we can't use State Highway 43 coming through Stratford on detour that's why we have to go the longer one through Wanganui, anywhere that's not prohibitive to take those vehicles, okay.

THE COMMISSIONER: Also you mentioned the trucks get stuck in terms of tractability. Is that just because of the wetness, or is it ice or is it ...

MR CLOKE: No, we don't have an ice problem up there, sir. It's never been a problem but they do lose traction on the wet pavement often and if there's a little bit of rubble come down from the slip or anything on there it just loses traction and you can't start off you have to be pulled out of the way.

THE COMMISSIONER: So you would need some sort of towing vehicle to pull you and use chains?

MR CLOKE: Usually we just connect up the top and bring another vehicle down to pull the vehicle up and get it going.

THE COMMISSIONER: Yes.

MR CLOKE: In the heat of the summer when a road's bleeding it's a problem.

THE COMMISSIONER: I have seen trucks stuck in the tar but sometimes in the wet with these sort of grades they also lose traction and can't move?

MR CLOKE: Yes. It's through the drive mechanism and the sharp corners mainly on the southern side, the northern side's all right it's just the summer side where it's continually wet.

THE COMMISSIONER: And the tunnels, you mentioned that there's oversized loads including up to the size of a house can get through that tunnel. There must be a certain limit to what can go through a tunnel of that sort of size obviously?

MR CLOKE: Yes, sir there is and the tunnel, this is sort of a standard 6 x 10 that's on most of the highways so anything else would need to be broken down or, once again, go the long way but that's not unusual for anything over that.

THE COMMISSIONER: So most of those over-dimension loads could come through the new route?

MR CLOKE: Yes.

THE COMMISSIONER: Okay.

MR CLOKE: A huge advantage.

THE COMMISSIONER: Yes.

MR CLOKE: A huge advantage even for just the little townships on the road to Awakino, they can actually shift houses up there now where you can do that, for bachs etc.

THE COMMISSIONER: Okay. Well thank you very much gentlemen.

MR CLOKE: Thank you for your time, sir.

THE COMMISSIONER: That is okay. Very well done, thank you.

MR CLOKE: In fact you can have the rest of the day off.

MALE SPEAKER: Then you won't read any more of them.

THE COMMISSIONER: That is right, there is always reading to do. So I think that brings us to the end of today's business. I do

not think there is anything else to talk about. Are there any questions from any party?

MR CLOKE: All good, thank you, sir.

THE COMMISSIONER: All right. It would be nice to close again with a karakia, if we could please?

(Closing karakia)

THE COMMISSIONER: Kia Ora. So I think tomorrow morning we're starting at 9.00 am.

(Hearing adjourned until Thursday 9 August 2018 at 9.00 am)