

IN THE MATTER OF

the Resource Management Act 1991

AND

IN THE MATTER OF

Notices of requirement for designations under section 168 of the Act, in relation to Te Ahu a Turanga; Manawatū Tararua Highway Project

BY

NEW ZEALAND TRANSPORT AGENCY
Requiring Authority

**ADDENDUM TO STATEMENT OF EVIDENCE OF KIERAN TROY MILLER
FRESHWATER ECOLOGY ON BEHALF OF THE NEW ZEALAND
TRANSPORT AGENCY**

25 March 2019

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INTRODUCTION

1. My name is **Kieran Troy Miller**.
2. I submitted a statement of expert evidence on Freshwater Ecology ("**EIC**") on behalf of the New Zealand Transport Agency ("**Transport Agency**") dated 8 March 2019.
3. I have the qualifications and experience set out in my EIC.
4. I repeat the confirmation given in my EIC that I have read the 'Code of Conduct' for expert witnesses and that my evidence has been prepared in compliance with that Code.
5. In this addendum I use the same defined terms as in my EIC.
6. In this addendum to my EIC, I respond to points made in the expert evidence of Nicholas Paul Goldwater on behalf of Department of Conservation. Mr Goldwater did not attend the expert witness conferencing on freshwater ecology held in the week of 11 March, meaning we did not have an opportunity to discuss his evidence and the points I make below.

RESPONSE TO EVIDENCE OF MR GOLDWATER

Fieldwork / survey assessments

7. Mr Goldwater states that the survey I undertook in July may not have been an optimal time for fish surveys because fish may be harder to survey for in colder seasons.¹
8. I agree, but add that a fish survey was conducted in February 2018 (before further field assessments in July 2018), within the optimal time period for surveying fish. For completeness, one site (site 7A) was not able to be accessed during the February 2018 fish survey and was surveyed in the July 2018 period². I am of the opinion, given the species represented and the habitat present, that the surveys provide a fair measure of fish assemblages.
9. As noted by Mr Goldwater, further field investigations will need to be conducted during the design phase. Supplementary data, from baseline monitoring, will also be provided for the freshwater ecological impact assessment that will be required as part of the regional consent application phase.

¹ At paragraph 4.3 of his evidence.

² As described under the methods section of the Freshwater Ecology Report.

10. In terms of those further investigations, in response to points raised by Mr Goldwater:³
- (a) further assessments of macrophyte abundance and macroinvertebrate assemblages (though I consider they are not likely to change the waterway values provided in the Freshwater Ecology Report); and
 - (b) I agree that freshwater surveys should be conducted within representative stream reaches in the Manawatū Gorge Scenic Reserve.
11. I also agree with Mr Goldwater (paragraph 4.7) that human-made ponds can support a large number of shortfin eels. This species is not a conservation threatened species (it is a harvestable species) and does not substantively increase the ponds' ecological value. It does mean that native fish relocation will likely be included as part of the construction process where these ponds are adversely affected.

Erosion and sedimentation⁴

12. I agree with Mr Goldwater that the potential impacts of sedimentation will be a key issue for the Project. This will require careful management, and consideration at the resource consent stage of the Project. However, there is no reason to assume that yet to be developed erosion and sediment control systems and on-site management will not be robust, or adequate to limit direct impacts on freshwater ecological values.
13. I agree with Mr Goldwater's recommendation that aquatic baseline monitoring be conducted within watercourses that flow through Manawatū Gorge Scenic Reserve. I have provided feedback to the Transport Agency to that effect. The adequacy of baseline monitoring will of course be considered through the resource consent process.

EIANZ Guidelines⁵

14. Mr Goldwater is concerned that following the EIANZ guidelines has the potential to underestimate the significance of stream loss.
15. The Freshwater Ecology Report follows the EIANZ guidelines which suggests that effects which are low and very low should not normally be of concern. I agree with that overall philosophy. However, the Freshwater Ecology Report

³ At paragraphs 4.4 – 4.6.

⁴ Paragraphs 5.4 – 5.6 of Mr Goldwater's evidence.

⁵ Refer to paragraphs 5.7 – 5.9 of Mr Goldwater's evidence.

acknowledges that there is an ongoing local, regional and national level drive to reduce the amount of tributary and headwater aquatic habitat loss (due to continued small scale loss). The Freshwater Ecology Report recommends minimising adverse ecological effects with a target of “no net loss” in the quantum of aquatic habitat.

Proposed spoil sites⁶

16. Mr Goldwater is correct in saying that the effects from spoil sites have not yet been assessed. Those effects will need to be addressed in the freshwater ecology assessment during the regional consent application phase.
17. I did not include an assessment of spoil site effects at this NOR stage because the detailed design for construction and development has not been developed and there are many factors that may change. In particular, I understand that:
 - (a) the total volume of excess cut to be disposed of may change as a result of the detailed design phase;
 - (b) there are a number of identified spoil sites within the designation corridor, but not all those are likely to be used. I understand one site in particular could accommodate all the current estimated excess fill; and
 - (c) the Environmental and Cultural Design Framework stipulates that the spoil sites should be designed to minimise impacts on waterbodies.

Culverts⁷

18. I agree with Mr Goldwater that the operational effects of new culverts will need to be addressed during the regional consent application phase. These adverse effects are difficult to assess in the absence of a detailed design, including the length and size of culverts (or if bridges will be used as opposed to culverts) as well as other associated aspects (all of which will be considered through the detailed design and resource consent process) such as culvert gradient, installation methods, level of armouring, styles of headwalls, internal velocity abatement strategies, and water flow velocity.

Options to avoid, mitigate, or offset potential adverse effects on freshwater ecology⁸

19. Mr Goldwater raises concerns (and also provides recommendations) in respect of options for addressing potential adverse effects on freshwater

⁶ Refer to paragraphs 5.1, 5.8 and 5.10 of Mr Goldwater’s evidence.

⁷ Refer to paragraph 5.11 of Mr Goldwater’s evidence.

⁸ Refer to paragraphs 6.1 – 6.7 of Mr Goldwater’s evidence.

ecology. The Freshwater Ecology Report was produced to provide an indication on the condition and values of the habitats present (any “no go areas”) and the potential habitat loss / modification associated with the proposed designation alignment (as well as to assist in the natural character assessment). The intention of the Report was not to provide a comprehensive package that would recommend avoidance, remedy and / or mitigation actions or otherwise address the likely effects. The detailed design phase will almost certainly alter how much waterway length will be affected, where, and in what way and thus the extent of measures necessary to address those effects, hence the report provided “preliminary” recommendations for appropriate avoidance and other measures.

20. My report highlighted the general aquatic values present in the proposed area of the designations, if there were any “show stoppers” (which there are not), and the kinds of effects related to linear roading projects which detailed design must be cognisant of.
21. I agree that there will likely be insufficient stream length within the designation corridor for which to address adverse effects of the Project on freshwater ecology values. **Dr Forbes** and **Mr Dalzell** discuss opportunities and processes for identifying and securing land beyond the designation corridor for ecological restoration processes.
22. In addition, there are potential design opportunities that can reduce impacts on freshwater ecology values which will need to be further explored. This detail, along with proposed measures to address effects, will be provided within the freshwater ecological impact assessment with the application for regional resource consents.
23. Mr Goldwater reflects on the use of the SEV process (para 6.6) to establish compensation ratios. The SEV method is used in some regions to determine the ecological compensation ratios (“**ECRs**”) and determine the amount of stream restoration required. This method is not mandatory under national, regional or local legislation, and does have a range of issues. Other suitable methods can be used to determine appropriate stream mitigation / offset. I do agree with Mr Goldwater that stream restoration methods will need to be guided by a comprehensive ecological management plan but the SEV-ECR system may or may not be suitable, and it is too early to determine that it is a good offset model to use in this circumstance. This is a matter for the regional resource consent process.

Conclusion

24. The Freshwater Ecology Report consider the values and potential effects associated with the Project, bearing in mind detailed design has not yet been carried out, and that detailed consideration of freshwater ecology issues is a matter for the resource consent process. The information I have provided is intended to be sufficient to establish where the aquatic ecological challenges will be and what the challenges are, in terms of potential adverse effects, that must be considered by the detailed design. It revealed that there were no values or conditions which warranted absolute avoidance, and recommended several preliminary avoidance principles.
25. I do not understand Mr Goldwater to disagree with these fundamental conclusions of my reporting and evidence. Much of his evidence relates to aspects of detail of further studies needed, and consideration of the aspects of detailed design in terms of avoidance opportunities, minimisation of aquatic effects, and mitigation / offset approaches.

Kieran Troy Miller

25 March 2019