

**BEFORE THE PALMERSTON NORTH CITY, MANAWATŪ DISTRICT (MDC)
AND TARARUA DISTRICT COUNCILS**

IN THE MATTER of the Resource Management Act 1991 (“the Act”)

AND

IN THE MATTER NOTICES OF REQUIREMENT by NZTA under s168 of the Act for the construction, operation, maintenance and improvement of approximately 11.5km of new State Highway between Ashurst and Woodville to replace the closed section of SH3 through the Manawatū Gorge and associated works, known as the Te Ahu a Turanga, Manawatū Tararua Highway Project (“the Project”)

Nicholas Paul Goldwater

**ADDENDUM TO EVIDENCE ON BEHALF OF THE DIRECTOR-GENERAL OF
CONSERVATION
(Freshwater Ecology)**

Dated: 4 April 2019

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1. INTRODUCTION

- 1.1. My full name is Nicholas Paul Goldwater.
- 1.2. I submitted a statement of evidence on freshwater ecology (EIC) on behalf of the Director-General of Conservation on 15 March 2019.
- 1.3. I have the qualifications and experience set out in my EIC.
- 1.4. I repeat the confirmation given in my EIC that I have read the 'Code of conduct' for Expert Witnesses (2014) and that my evidence has been prepared in compliance with that Code.
- 1.5. This Addendum includes a summary of my EIC, comments on the Addendum of Kieran Miller and my comment on conditions.

2. SUMMARY OF EVIDENCE

- 2.1. My EIC addresses the potential adverse effects of the proposed bypass on freshwater ecology. It does not include comments on the assessment of effects on natural character. I acknowledge that the Freshwater Ecological Impact Assessment (EIA) prepared by Mr Kieran Miller addresses the potential adverse ecological effects at a relatively high level.
- 2.2. Stream Ecological Valuations (SEVs) undertaken by Applicant across eight sub-catchments demonstrated a broad range in SEV scores throughout the study site, which largely correlate to the presence/absence of woody riparian vegetation and connectivity to the floodplain. Most of the higher value reaches are situated in sub-catchments 6 and 7.
- 2.3. The freshwater survey did not include aquatic habitats within the Manawatū Gorge Scenic Reserve. Given their proximity to the designation and the fact that they comprise the downstream receiving environments for the proposed bypass, quantification of these habitats would allow a better understanding of the potential adverse effects of the Project.
- 2.4. The Applicant estimates that c.4,000 metres of stream loss may occur as a result of the proposed works. This amount does not take into account the stream loss that would occur due to the

establishment of up to nine spoil sites within the designation. I estimate that the total stream loss would be approximately 7,000 metres, acknowledging that a very small proportion of this would likely comprise ephemeral stream habitat.

- 2.5. The construction of up to nine spoil sites will directly affect the headwaters of numerous streams within the bypass corridor. The loss of headwater streams has the potential to adversely affect the hydrology of downstream receiving environments, including streams, wetlands, and areas of swamp forest. The potential effects of spoil sites have not been adequately assessed by the Applicant.
- 2.6. I also consider sedimentation to be a key issue for this Project given the high ecological values and steep topography of the receiving environments immediately downstream. Substantial amounts of sediment could drastically alter the character and condition of the steep hard-bottomed streams within Manawatū Gorge Scenic Reserve, as well as adversely affecting aquatic habitat within the Manawatū River.
- 2.7. I have questioned the Applicant's use of the EIANZ guidelines¹ to assess the magnitude and level of ecological effects associated with potential stream loss.² By not mitigating stream reaches where effects are considered to be 'low' or 'very low', there is a risk of downplaying the cumulative effects of stream loss within the designation, particularly given the potentially high proportion of stream reaches that could be assigned to the 'low' or 'very low' levels of ecological effects (see paragraph 3.4 below). In my opinion, all reaches should be mitigated, regardless of condition.
- 2.8. A conservative ECR of 1:3 would require some 21,000 metres of stream length to be restored (based on stream loss of c.7,000 metres). There is insufficient stream length available within the NOR designation to offset all likely stream loss, hence off-site options will need to be investigated in conjunction with obtaining landowner permission. This presents considerable uncertainty (landowners may not want to offer up their streams for offsetting purposes).

¹ Roper-Lindsay et al. (2018).

² Goldwater EIC at [5.8] and [5.9].

- 2.9. There are obvious opportunities to avoid adverse effects on some streams by constructing bridges rather than culverts. I acknowledge the additional costs involved, although I would have expected that alternatives to piping were identified and evaluated in the Application.
- 2.10. As it currently stands, the proposed bypass will have significant residual effects on watercourses within the designation, and it is likely that construction and operational activities will adversely affect high quality downstream receiving environments in the Manawatū Gorge Scenic Reserve.

3. RELATIONSHIP TO REGIONAL RESOURCE CONSENTS

- 3.1. Condition 5(e) states a maximum length for the QEII Trust west and east streams to be permanently disturbed by diversion or other physical modifications. Although this is portrayed as an 'environmental bottom line' I am concerned that the NOR may indicate that those length disturbances are acceptable, without further justification or analysis.
- 3.2. The proposed maximum lengths of disturbance (350 metres for stem 7A and 460 metres for stems 6A, 6B and 6C respectively) would occur in reaches known to have high ecological values. In particular, there is the potential for significance disturbance to the headwaters of Watercourse Network Six and likely adverse effects on sub-catchment hydrology. I have not viewed sufficient information demonstrating why these effects cannot be avoided.
- 3.3. I note that there is uncertainty over whether the SEV methodology will be utilised³, although I acknowledge that the use of SEV methodology is not statutory (as Mr Miller mentions). It would be useful, however, to present other options of offsetting models that could be applied to stream loss. I note that SEV methodology has been used in projects of a similar nature and scale, e.g. Mt Messenger.
- 3.4. As stated above, I disagree with Mr Miller's approach whereby stream loss is not recommended to be offset if the level of ecological effects are less than 'moderate', i.e. 'low' or 'very low' as per the EIANZ guidelines. The total stream length with a 'low' or 'very low' level of ecological effect in Table 6.9.C of the Freshwater Ecological Impact Assessment comes to 2,440 metres, which is 61% of total stream loss if spoil sites are not

³ Paragraph 23 of Mr Miller's Addendum.

included and 35% of total stream loss if spoil sites are included. These figures constitute a significant portion of the potential extent of stream loss within the designation. I have not seen this approach proposed before (i.e. disregarding effects assessed as low or very low under the EIANZ guidelines).

- 3.5. In this respect, I agree with the comments of Mr Brown, including in relation to potential cumulative adverse effects on freshwater ecological values.

Nicholas Goldwater
4 April 2019