

Report pursuant to s 42A Resource Management Act 1991

In the matter of:

A Notice of Requirement to construct, operate, use, maintain and improve approximately 11.5km of new State highway connection between Ashhurst and Woodville

And:

A hearing by Manawatū District Council, Palmerston North City Council and Tararua District Council pursuant to s 102

Requiring Authority:

New Zealand Transport Agency

Hearing date:

5 April 2019

NJ-015652-992-988-V1-e



Section 42A Technical Evidence Addendum: Ecology

By: James Lambie, 4 April 2019

NJ-015652-992-988-V1-e



1 Scope

1. This report is an addendum to the s 42A report dated 1 March 2019 (the “s 42A report”). It provides an update of issues related to the management of the effects on indigenous biological diversity for the Te Ahu a Turanga Project. This addendum should be read in conjunction with the s 42A report.
2. My role has been to peer review the applicant’s expert evidence and to draw the Panels’ attention to areas where I consider there to be shortcomings with NZTA’s approach. The addendum provides an update following evidence to date.

2 Comments on Evidence Presented to Date

3. There is agreement between Dr Forbes and myself regarding the evaluation of the significance of habitats and the ecological effects assessment. In addition, there is agreement between us that the direct effects on fauna at this stage in the process can be managed through management plans that seek to largely avoid effects in the first instance and remedy or mitigate remaining effects over time.
4. The main issue in contention is whether offsetting the loss of areas of significant habitat is appropriate given the vulnerability of that habitat and lack of certainty about where the offsets will be implemented and whether they are commensurate with the potential losses.
5. Instead of parking the significance and effects assessments, I stress the need to have these foremost when determining whether NZTA has adequately demonstrated that significant adverse effect on highly vulnerable habitats cannot be avoided and that those effects will need to be offset for net gain. The scale and types of effects cannot be “parked” if there is to be attention given to the adequacy of the proposed “package of positive biodiversity effects” in managing what are otherwise significant ecological effects. I will refer to such a package as a “mitigation / offsets / compensation package” as it has yet to be established whether positive effects result in net gain.

6. Without foregoing the ability for the Regional Council to evaluate these matters in light of more detailed resource consent applications, there should, in my opinion, at least be an assessment at this stage of the availability (appropriateness) of offsetting when having regard to the Project's effects. As set out in my s 42A report offsetting is not available in all circumstances, with the requirements of Rule 13-4 needing to be satisfied before offsetting is an option.
7. Dr Forbes identifies that there remains, after consideration of methods to reduce impacts, high to very high adverse effects on areas of indigenous vegetation with high to very high ecological value. With reference especially to forest types that Dr Forbes describes as "old growth" forests, but also to wetlands, the word "irreplaceable" has been used by Dr Forbes, Mr Wallace (QEII Trust), and myself (among others) to ascribe the level of importance attributed to these habitats. The potential irreplaceability of these ecosystems is in my opinion due to limited options for replicating the ecological conditions found in them (paragraph 15 of my evidence).
8. In our Joint Witness Statement, Terrestrial Ecology (JWS), we observed that avoidance of the Western QEII is the preferred outcome. Dr Forbes has discussed several options to lessen the potential effects (paragraphs 65-66) but opines that they cannot be progressed due to design limits. I note Dr Forbes' comments that an alignment that goes further north has a deeper cut and therefore potential for increased effects on the Western QEII. However, I have been unable to find in the evidence of NZTA the design option that substantiates this opinion. In his presentation to the Panel Mr Whaley commented that an alignment that goes further north to avoid the Western QEII runs into the potential problem of affecting indigenous vegetation in the gully further to the north and results in greater earthworks volumes. However, as Dr Forbes has not assessed (at least in any recorded form) the value of that vegetation or effects, I am unable to form a view as to the merits of that position. I would like this assessment to occur.
9. Dr Forbes has also suggested that effects on the Eastern QEII could be reduced (by eliminating the fragmentation effect) by going further north (paragraph 68).

In Mr Whaley's written response to the Hearing Panel's question he acknowledges the feasibility of this option. Mr Whaley also stated that an alignment further north would reduce loss to 40% of the presently predicted loss to the Eastern QEII vegetation. As I understand it the NOR boundaries were altered to accommodate this alignment option, although the effects envelope prepared by Dr Forbes does not account for the lesser effects that would result on the QEII block. It is not clear why NZTA have not looked to avoid or further reduce the effects on the Eastern QEII through this alignment option.

10. The ecological experts acknowledge that there are decisions around alignment that are outside our sphere of expertise, as reflected in the ecological experts JWS. I would be concerned however if design and cost considerations were being given greater weight than management of effects on biological diversity. Given the significance of the QEII areas and the significance of effects on them (high and very high effects), and the lack of certainty on the deliverability of the proposed offsets, I believe further consideration should be given to avoiding these sites.
11. If NZTA are to progress with the NOR as proposed, and avoidance of the QEII areas (particularly the Western QEII) cannot be achieved, then we agreed in conferencing that a "net gain biodiversity package of positive effects" is an appropriate response. This is a specific acknowledgement that the habitats are not so irreplaceable that any offsetting proposal is likely to fail to meet Policy 13-4 d) (iv) if the effect envelope is carefully managed. Any package would also need to meet the other requirements of 13-4(d), including the question of deliverability of outcome. It is clear from the ecology-related statements that there is a heightened expectation that such a package clearly shows how the proposed offsets result in net gain for biodiversity.
12. As reported by Dr Forbes and myself, when coming to this conclusion, there is a high level of proof needed to demonstrate that an offset is feasible ("beyond reasonable doubt" (per Pilgrim et al. 2013 - reproduced below)).

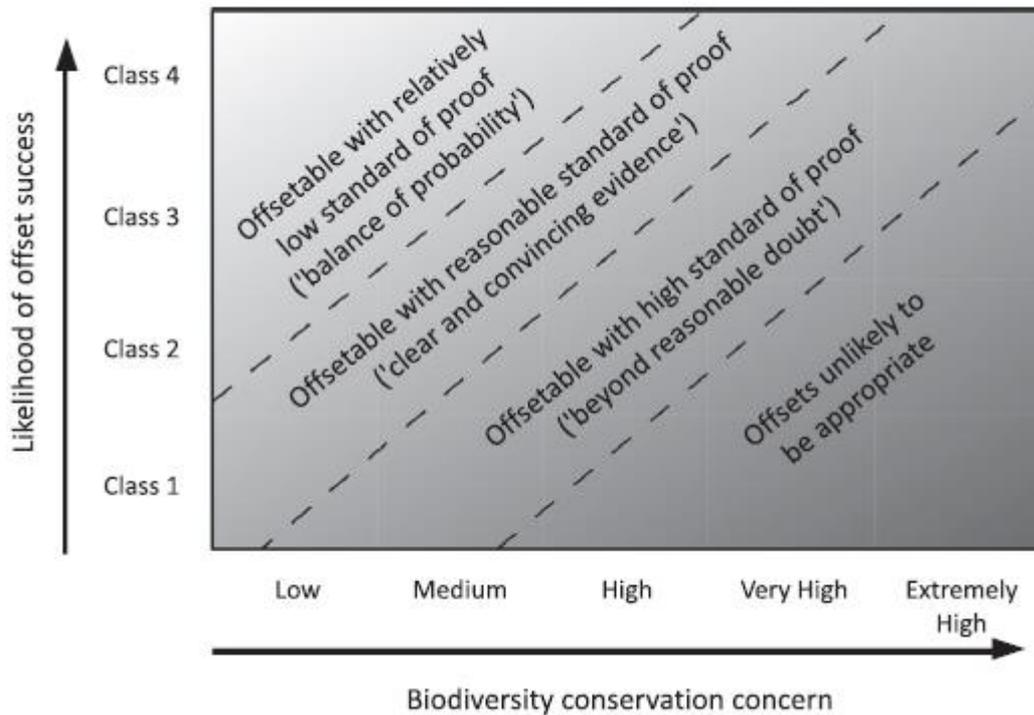


Figure 2 Pilgrim et al. (2012). Burden of proof conceptualisation of offsetability, combining biodiversity conservation concern and likelihood of offset success. A practical framework may thus, e.g. view offsets as unlikely to be appropriate for: Class 1 likelihood of offset success for areas of High, Very High, and Extremely High conservation concern; Class 2 for Very High and Extremely High concern; and Class 3 for Extremely High concern.

13. The level of biodiversity conservation concern (x-axis) for the “old growth” forests and indigenous seepage wetlands sit on the high to extremely high spectrum (see Dr Forbes technical report, at page. 61).
14. The Hearing Panel is aware that the land for placing offset plantings has not been secured, which at this stage reduces certainty of success. With a lack of certainty as to where sites will be located, there are also difficulties in testing the ecological equivalency of the proposed offsets. Therefore, the likelihood of success (y-axis) is, in my opinion, sitting somewhere around class 1 or class 2.

15. To my mind, failing a test of “beyond reasonable doubt” puts NZTA in a place where it should again be exploring options to avoid any of the habitats of high to extremely high biodiversity conservation concern. At the very least further work is required around the certainty of delivery of net biodiversity gain. In these circumstances the NOR corridor should provide for avoidance. This is the intent of Policy 13-4 of the One Plan, in my opinion, where a decision to use offsetting sits in an iterative cycle of avoid, then remedy/mitigate, and then offset residual effects, until it can be demonstrated that any offsetting would result in net gain (Paragraph 34 of my evidence).
16. The habitat ECRs are a means of addressing an effect in the form of time lags. Regardless of how generous they are, they do not by themselves demonstrate gain. Ms Lynch-Karaitiana makes a very astute observation that net gain cannot be demonstrated until work is underway. In her view, what is required is an adaptive management approach that responds in a way that ensures that net gain is achieved. I agree, and under such practical circumstances, whether the ECRs are generous or reasonable, or even defensible is moot.
17. Nevertheless, as identified in the terrestrial ecology JWS, it would be useful when resource consent applications are lodged for NZTA to provide a breakdown of the relative roles of the ECRs and other positive effects. This would with assist showing a net gain following the prescribed package will be achieved.
18. Ms Lynch-Karaitiana also highlights that the western ecological paradigm of like-for-like and the One Plan paradigm of indigenous dominance limit scope for iwi input and lack Māori cultural context. When addressing the effects on biological diversity in all of its forms, we need to be careful about what is being traded. I do not understand iwi / hapū to be seeking the trade of the loss of species of conservation concern (such as swamp maire) for taonga (like matai), however this could occur if the ECRs constrain the areal extent of the response (such that there is not enough room to address both sets of needs). I consider that the ecological effects mitigation/offsets/compensation package needs to

encompass both the Māori cultural and western conservation paradigms. We may find the ECRs a limited response tool.

19. Strictly from the western conservation paradigm, the present proposal results in at least one trade. This trade is in the form of exchanging for each hectare of old growth forest, 10 hectares of new forest of roughly the same canopy composition. Dr Lloyd and others (including myself to a point) observe that the trade is for a known loss of structure and complexity that cannot be realised over 25-years of forest regeneration and therefore the proposal should be considered one of compensation and not offsetting. Dr Forbes argues (and I agree to a point) that the loss of structure and complexity of one hectare can be addressed by undertaking habitat enhancement in the avoided areas of old-growth forest as well as accounting for some time lag through the ECRs.
20. From the prescription put before us, I cannot tell whether the proposal (or parts of it) should be considered an offset or compensation.
21. Part 6 of Dr Lloyd's evidence describes the difference between offsetting and compensation. On the hierarchy of biodiversity effects management, compensation comes after offsetting (Maseyk *et al.* 2018) because it carries a greater risk that the result is a net loss of biodiversity. Compensation may have a place in addressing residual effects after offsets have been applied, but compensation alone will likely fail to meet the Policy 13-4 requirements,
22. The One Plan is not explicit about the appropriateness of compensation. The decision as to the role compensation may or may not play in delivery of the net benefit gain is best left to the regional consenting phase where it is expected that the ecological effects mitigation/offsets/compensation package will more precisely describe how a net gain will be achieved. Care needs to be taken to ensure that conditions placed on the NOR do not predetermine or restrict/constrain the Regional Councils' decision when it comes to consenting (or otherwise) effects on biodiversity.

23. I have considered whether a funding contribution to another agency to undertake biodiversity offsetting on behalf of NZTA is acceptable. In this regard, financial compensation and financial offsets can be considered in the same light as any other compensation versus offset discussion. However, because funding a response is one further step away from addressing the effect, it is more difficult to show that a funding contribution is an offset and not a compensation.
24. The success of financial contributions relies on artful consent conditions that relate the funding response to the environmental response, which in turn can be clearly related back to the effects. In my opinion financial contributions run the risk of not achieving Policy 13-4 d (ii) (to reasonably demonstrate net gain) and/or Policy 13-4 d (vi) (achieve conservation outcomes above and beyond that which would have been achieved if the offset had not taken place) in practice.
25. By way of a real example, NZTA is conditioned to (among other things) “...develop and implement a strategy for controlling predators and browsers along the track” as a means of offsetting the effects of a track that NZTA cut through the south fragment of MGSR in 2012 (MWRC Landuse Consent and Discharge Permit #106143 and 106144). My understanding is that NZTA achieves compliance with this condition through a \$5,000 financial contribution to the Manawatu Gorge Governance Group (MGGG) of which NZTA is a part. In turn the MGGG fund the Department of Conservation around \$50,000 to undertake possum and rat management work on the south side of the gorge. Predator control on the south side of the gorge is then undertaken by a volunteer group.
26. Whether the funding NZTA provides is an appropriate share of the cost, whether the action of DOC and others is a net gain commensurate with the loss, and whether the actions taken are over and above the actions that would have been undertaken by DOC and others anyway, is obscured by the evolution of the objectives of the MGGG over intervening years. It is very difficult today to tell if the arrangement reasonably demonstrates a net gain or achieves outcomes over and above those which the MGGG has set.

27. Any condition that directly requires the holder to fund the predetermined objectives of an under-funded conservation agency will likely lack the context needed to show how the funding achieves net gain. More certainty that the conditions of Policy 13-4 can be met though funding might be better achieved by:
- a. First; progressing a more explicit package of biodiversity benefits.
 - b. Next; calculating the cost of the package over 25 years of implementation, and using this as the basis of the fund; and
 - c. Finally; choosing an implementing agency (or range of agents) based on their ability to implement the package, and securing how this will be achieved as planned by the agency.

Response to conditions proposed by Timothy Martin (DOC)

28. I have been asked to comment on the changes to conditions recommended by Dr Martin. I do so in the following table:

Conditions referred to in Dr Martin's Addendum (referring to Ms McLeod's Conditions set 2 April 2019)	Comment
5 –inclusion of the survey of wetland extent as a condition.	Agree. Logically sits in condition 5 as the results of the survey influences condition 13. Condition to refer to the Clarkson 2013 method or WEMAK method for wetland delineation and condition assessment. Condition needs to have scope to assess amount of loss to road, embankment, and spoil sites. Survey needs to assess wetland extent and quality and any other ecological value so that

	<p>effects response can be scaled appropriately.</p> <p>Condition should retain the assumption that all wetlands (including exotic dominated) are included in a mitigation/offset/compensation package.</p>
<p>5 - That the total areal extent of exotic wetland ECR should be updated following the survey.</p>	<p>Agree in so much as, if the areal extent of this wetland type is smaller than presently predicted, this lesser amount should appear in the condition relating to the maximum amount of vegetation consented to be cleared.</p>
<p>13 - The ability to revise the ECRs is needed (through a framework for reassessment).</p>	<p>Agree. It is expected that the effects will be re-scaled on the final design. The known areal loss, quality and condition, and faunal status of affected sites are elements to be considered. The existing status of these elements in the proposed restoration sites needs to be known as well, so as to be able to demonstrate additionality, with lesser additionality being offset/compensated for by increase in ECR. Selection of restoration sites should preferentially favour landforms where ecological gains are maximised. The condition should ensure that the current ECRs are minimums to be revised upward only.</p>
<p>13 - The edge effects plantings need to have their own condition or recognition.</p>	<p>Agree. A condition needs to lead to the ability to determine a quantum of edge effect to be addressed and a quantum of plantings to address these effects. Where these effects cannot be appropriately managed by mitigating at site (e.g. newly cut forest edge at the top of a steep cut) then this part of the quantum is used to address edge of fragmentation effects elsewhere.</p>

<p>13 c) - Ecological no-go zones should not overlap with spoil sites.</p>	<p>Agree. Spoil sites need to be updated. A condition that explicitly states that the activity must avoid no-go zones would be useful to improve certainty.</p>
<p>16 - Habitats for nesting whitehead in scrub, shrublands, and exotic forests.</p>	<p>Agree. The removal of these habitats during nesting is an effect of the activity to be considered. Ensure condition covers all of the likely nesting habitats for whitehead.</p>
<p>16 f) - Exclusion areas for nesting cryptic birds as per pipit.</p>	<p>Agree. However, there are other effects to be addressed such as the loss of a small amount of reedland which may be better dealt with through wetland restoration or large-scale predator control. Ensure that any nesting exclusion conditions are not used to reduce opportunity for these other methods to arise (i.e. do not exclude mustelid and cat control as options just because a nesting effect is conditioned).</p>
<p>16A c) – should refer to detailed measures to ‘retain’ habitats for at risk or threatened taxa threatened by the Project.</p>	<p>Agree. A condition is needed to ensure that high value habitat types that presently do not have effects envelopes, are avoided in the first instance when the final design is being developed.</p>
<p>16A -Invertebrate surveys must include but not be limited to successional habitats</p>	<p>Agree. Also, there is a degree of specificity needed that the assessment of the shrubland habitats is in and around chainage 9000-10000.</p> <p>The condition requirements should also be run past Dr Forbes and Mr Blaney for technical review.</p>

<p>16A - There needs to be a definitive feedback into the invertebrate management plan with regard to optimal timing of vegetation clearance based on the faunal species affected.</p>	<p>Agree.</p> <p>As a condition requirement, this should also be run past Dr Forbes and Mr Blaney for technical review.</p>
<p>17a) – reference should be to <5% residual trap catch/track indexing score.</p>	<p>Agree for the reasons Dr Martin states, but reserve the opinion that possum control targets might need to be lower still if pest control is to contribute over and above that already achieved.</p>
<p>17a) iii) H) - The species names of the potential host plants need to be included for the avoidance of doubt.</p>	<p>Agree. This should not preclude the desire for any replacement planting of the divaricating shrubland to be like-for-like in overall species composition, but it does provide for a specific faunal outcome as well (noting that <i>Olearia virgata</i> is missing from Dr Forbe’s habitat description list).</p> <p>Remove reference to “subject to availability”. As per swamp maire, propagules can be sourced from site and specifically raised.</p>
<p>13 – Check that the requirements of the CEDF and LMP cannot inadvertently overrule the intent of Condition of 13 for fulfilling ecological functions</p>	<p>Agree.</p>

<p>that restoration planting is to achieve.</p>	
<p>12 f) - That the condition limiting vegetation to 1.5m height on Te Apiti Windfarm explicitly exclude habitat types that are expected to grow higher than 1.5m.</p>	<p>Agree although suggested wording is more general (not just forest directed). While the condition should result in forests not being planted on the The Apiti windfarm, it is not obvious that this situation would arise in practice in any event.</p>
<p>31 - Update condition to also refer to requirements of conditions 14, 15, 16 and 16(A).</p>	<p>Agree.</p>

James Lambie

4 April 2019