

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



Section 42A Technical Evidence Addendum: Landscape and Natural Character

By: John Hudson, 4 April 2019



## **1 Scope**

1. This report is an addendum to the s 42A report dated 1 March 2019 (the “s 42A report”). It provides a summary of key points related to the landscape and natural character evidence for the Te Ahu a Tūranga Project, and provides an update following evidence and submissions presented through the hearing. This addendum should be read in conjunction with the s 42A report.
2. At the outset I note that my role has been to peer review the applicant’s expert evidence. While I could do so if asked by the Hearing Panel, I do not consider it to be my role to carry out my own landscape and natural character assessment. However, I do consider it my role to draw the Hearing Panel’s attention to areas where I disagree with the methodology and subsequent conclusions of the applicant’s experts, or where I consider there to be shortcomings in the expert’s approach.
3. To undertake this, my addendum will cover the following:
  - a) A review of key points from my s 42A report
  - b) Comments on evidence to date; and
  - c) Modifications of my s 42A report conclusions as appropriate following evidence.
4. I note the question of Mr Miller during evidence about whether there was still a dispute between the expert witnesses over the methodology used for the natural character assessment. For the reasons set out below, by reference to my s 42A report and subsequent evidence, there are still outstanding issues about the methodology.

## **2 Comments on evidence presented to date**

### *Cultural*

5. Throughout the hearing a recurring theme regarding cultural values has emerged from iwi. While iwi say they endorse the Project, they also indicate that they have a strong desire for cultural values to be included in the detailed design. There has also been a clear message that they do not want to see the loss of any more trees and wetland. It appears that the opportunity to have input into the design and restoration packages has

meant iwi (as was expressed by Mr Carlyon) have chosen to be 'in the tent' and not 'in a box to be consulted'.

6. Mr James Kendrick illustrated the expansiveness of cultural dimensions with reference to the health of streams and water, birdlife, all types of vegetation and natural processes; all the time emphasising the need for Maori to be the ones to determine these values. However, these values have not yet been determined through a cultural values assessment.
7. There may also not yet be agreement between iwi on wider issues regarding recognition and status. Given some of the evidence heard during the hearing the possibility of disagreement seems a real one. The prospect of a stalemate was raised by the Hearing Panel. In response, Mr Bentley accepted that the absence of agreement would leave the CEDF with more limited detail from which to draw direction. In my view, some regard needs to be had to how disagreement is addressed between the parties impacted by, or involved with, the CEDF.
8. Cultural values have not been directly considered as part of the landscape or natural character assessments. Mr Kendrick's submission illustrated the difficulties this causes when ecological priorities are determined without such input (e.g. Swamp Maire receive the ecologists highest offset rating but Matai are more important to Ngati Kahungunu and have strong links to Kereru). Pukutawai and Peruperu also had strong traditional uses but were not recognised as such in the ecological assessment or offsetting ratios. Mr Carlyon further considered that offsetting should be determined with reference to Maori cultural values. In my opinion, the assessments would benefit from more direct input from iwi in this regard, and it may be something NZTA intends to keep working with iwi on.
9. While iwi place considerable store on the excellent relationship that has been established with the project manager Mr Dalzell, translation of cultural values into the CEDF is important to allow contractors to incorporate these values into their designs. As already stated there would be benefit in having some alternative mechanism within the CEDF to address circumstances where agreement between iwi on the contents of the CEDF cannot be reached from a cultural perspective, or the unavailability of Mr Dalzell for any reason. One possibility may be using the natural character components as a supporting design theme in the CEDF. If accepted, this would need to be translated into

the Conditions, with such wording as *'if consultation with iwi results in disagreement on the cultural references to be incorporated into the design of the Project, structures must include one or more of the following: [list of things to include in designs]'*. This could include reference to birds, leaves, trees, rivers, ranges and geology.

#### *Effects*

10. Ms McLeod has stated that an effects-based planning approach was being undertaken for the Project. The NOR corridor was selected to manage effects, then an envelope of effects was created within that area, with residual effects to be managed through the CEDF, Management Plans and Outline Plan.
11. As noted above, cultural effects cannot be evaluated at this stage as they have not been determined. A Maori world view sees ecosystems and people as a whole, not broken down into isolated parts e.g. felling of trees effects the birds, waterways and fish and mauri of the place. Seeking to determine effects without this information is challenging. I note that Mr Carlyon stated that iwi have no s 6(e) issues. However, he also stated that it was not appropriate to deal with effects by management plans and they should instead be dealt with now in decision making. I find this hard to reconcile with the current timeline.
12. Effects are a key consideration of One Plan Objective 6-2b. These include assessment of adverse effects on natural character (or rivers and lakes and their margins) and avoiding those that would significantly diminish the attributes and qualities of areas that have high natural character. It also includes consideration of Objective 6-1 which requires protection of significant indigenous vegetation.
13. The evidence of Mr Evans concluded that significant adverse effects on natural character did not occur when considered at a Whole Stream scale, while they were significant at a 'crossing' scale. In reply of a question from the Hearing Panel regarding effects at whole stream scale, Mr Evans confirmed this approach. For the reasons set out below and in the s 42A report, I disagree.
14. While Mr Evans has reached the view that significant adverse effects on natural character did not occur when considered at a Whole Stream scale, there has been no cumulative assessment of this. As I discuss in the s 42A report, and also later in this Addendum, this is despite there being a requirement under the One Plan for this to take

place. This part of the assessment of effects is relevant in circumstances where successive areas of high natural character are crossed:

- a) Construction access from Saddle Road;
- b) Western Slope:
  - i. lower slopes old growth forest, stream 7a;
  - ii. lower slopes old growth forest, lower portion of stream 7b;
- c) QEII West (3 arms);
- d) QEII East.

15. Individually, each has been assessed as having a reduction in natural character from High to Moderate/High. I discuss the assessment of these sites in greater detail below. Additionally, however, I note many other crossings have been considered under the heading of Generic Streams and Wetlands. These were also referred to by the QEII Trust in their submission to the Hearing Panel, including with respect to the potential effects of siltation and effects on fauna.
16. In my opinion, with such a combination of adverse effects, there is the potential for significant adverse effects on natural character to occur in a cumulative sense. This cumulative assessment has not been undertaken despite it being a statutory requirement under the One Plan when seeking to preserve natural character and to protect the streams and wetlands from inappropriate development.
17. There is also a requirement to protect outstanding natural features and landscapes (ONFLs) from inappropriate subdivision, use, and development. The NOR corridor affects several ONFLs which are included within various statutory provisions (RMA s 6(b), One Plan Schedule G and Objective 6-2, TDC District Plan, MDC District Plan). Ms McLeod included a cursory consideration at best, which is not an evaluation against the relevant provisions by someone with landscape expertise. The Landscape and Natural Character Technical Assessment has not undertaken an assessment against these ONFL provisions, and Mr Evans has not rectified that through evidence to date.

*Methodology for natural character assessment*

18. The methodology used to assess natural character was described as being derived from similar work that Boffa Miskell had undertaken in South Island rivers. Mr Evans states there was no agreed method from DOC or the NZILA (NZ Institute of Landscape Architects). It is Mr Evans' view that the method did not simply involve use of a statistical median and that his conclusion on effects was influenced by the natural character team discussing and weighting their conclusions (including weighting of individual attributes). There is now agreement between the experts at conferencing that use of a statistical median alone would not be appropriate.
19. Mr Evans noted in the JWS that weighting of attributes was given attention through the expert group workshop and subsequent discussions that fed into Technical Assessment #4. This was not agreed by all participants in the expert conference session for two reasons:
  - a) The s 42A reporters could not have participated in the discussion into Technical Assessment #4; and
  - b) There was no reference in the NOR documentation (Landscape and Natural Character Technical Assessment #4 and Appendix 4A) to suggest that weighting had been given attention.
20. On the face of the documents with the NOR, it is not obvious that a weighting between attributes occurred. First, all of the attributes contributed equally to the median calculation described in the Technical Assessment. Furthermore, despite Mr Evans indicating that an evaluation of the accuracy of the median occurred, none of the median scores changed as a consequence of any workshop.
21. If a median was relied on by NZTA, I remain concerned with the findings as per the reasons in my s 42A report. Alternatively, if quasi weightings of individual attributes occurred by under or over scoring each attribute prior to calculating the median, that is a highly opaque methodology that would be difficult, if not impossible, to replicate. Any such adjustments do not appear to have been documented within the NOR documentation. At present therefore, I consider the natural character assessment methodology described by Mr Evans to be insufficient and too uncertain to support

decision making on a matter of national importance which has a strong avoidance policy that may be triggered.

### 3 Review of key points from my EIC

22. There is a statutory requirement (RMA definition of 'effects' and One Plan Objective 6-2(b)) to assess cumulative effects. This has not been undertaken in the landscape and natural character assessment. There is also a need to consider cumulative effects on landscape under the One Plan (see above).
23. The Landscape and Natural Character Assessment states that a statistical median has been used to determine the natural character rating and no weighting has been applied<sup>1</sup>:

*Each of the 10 natural character attributes for each location were assessed and assigned a level of natural character (very high to very low). These 10 ratings were then ordered/listed from very high to very low and the median rating (middle of the list) identified as the overall level of natural character for that location. No weightings were applied to any of the attributes.*

24. The results of the ratings are shown in Tables 9, 10, 11 of Natural Character Assessment Appendix 4A. Tables 9 (QEII West) and Table 11 (QEII East) were attached to my written answers to the Hearing Panel questions (on 14 March). I have attached to this addendum for ease of reference. While discussion may have taken place within the assessing group of experts to confirm the rating of each individual attribute, there is no evidence to show weighting has been applied between these attributes to promote one of greater importance or demote one of lesser importance. The overall rating of each column is a simple median of the column's 10 individual attribute ratings. It has not obviously been weighted.
25. The Landscape and Natural Character Assessment states:

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<sup>1</sup> Technical Assessment 4 Appendix 4A Natural Character Assessment 3.4 Level of Natural Character, at page 14.

126. For this assessment, a reduction in natural character from High to Moderate or less is considered to "significantly diminish the attributes and qualities of areas that have high natural character" (Horizons One Plan Objective 6-2).

127. Such a reduction is considered to be significant because it requires several of the 10 assessment attributes (above) to reduce for the overall level of natural character to be affected.

26. When the Whole Stream results for QEII West Viaduct are considered, two attributes reduce from High to Moderate. When the Whole Stream results for QEII East are considered, four attributes reduce from High to Moderate or more. These are shown in the marked-up tables attached, with the red circles illustrating the attributes that reduce from High to Moderate.
27. In my opinion, the Natural Character Assessment's own findings appear to confirm that several of the attributes of natural character will be significantly diminished in these areas of high natural character. Mr Evans agreed in the JWS that Objective 6-2(b) is not met if several attributes are significantly diminished.
28. On face value a reduction from High to Moderate indicates a single point reduction on a 5-point scale (VH, H, M, L, VL). However, intermediate descriptions have been used in the assessment, such as Moderate/High (MH) etc. When intermediates are placed across the whole 5-point scale, it effectively becomes a 9-point scale.
29. The JWS agreed, stating that: "*the five-point scale is effectively a nine-point scale.*" The JWS also agreed that "*a series of small rating changes on the nine-point scale could result in a significant diminishment of natural character.*"
30. The smallest rating change possible is a single point change on the 9-point scale. If the agreed approach of a single step reduction is adopted with the 9-point scale then a number of changes from High to MH (or similar) would be a 'significant diminishment' for the purpose of the One Plan provisions.
31. When the Whole Stream results for the QEII West Viaduct are considered, seven of the 10 attributes have at least a single point reduction (some have a two-point reduction) as shown on the attached table with orange circles indicating the single point changes.
32. When the Whole Stream results for QEII East are considered, 9 of the 10 attributes have as single point reduction or more. This is also shown on the attached table with orange circles indicating the single point changes.

33. In my opinion, this illustrates that several of the natural character attributes for these areas of high natural character will be significantly diminished.
34. It is also my opinion that the actual ratings given to some of the attributes in the Natural Character Assessment are questionable. For example, I refer to the overall rating for QEII East, which has been assessed as remaining High before and after the road's construction i.e. it is unchanged because of the road.
35. I have undertaken a desktop assessment for two of the attributes for this area which is detailed in my evidence in chief (EIC) at paragraphs 83-112. I conclude that there is a reduction from High to Moderate or lower for Context and Experiential. If a median is used, the overall natural character rating is unchanged, which simply illustrates the inappropriateness of the median. If the relative importance of attributes was weighted, I would expect that a change from High to Moderate and lower for two important attributes would change the overall natural character rating.
36. I therefore disagree with the findings by NZTA experts for these two attributes for the QEII East Whole Stream Crossing, which brings into doubt the reliability of the findings for similar attributes in other areas and the resultant Natural Character ratings. While this is an expert judgement, the assessment criteria are detailed in the Appendix 4A Assessment (copied into my EIC at paragraphs 83-112) so I would expect a reasonable degree of replicability as part of a peer review assessment process. In my opinion, there is a likelihood that the rating reductions for natural character may not have sufficiently reflected the impacts that the NOR corridor and associated road will have in this regard.

## **4 Conclusions Modifications of my EIC conclusions having heard the evidence to date**

37. Overall, the evidence presented through the hearing to date has given me greater comfort in some areas and confirmed areas of concern in others.
38. The support in principle of iwi for the Project is apparent from the evidence presented to the hearing, which reduces concerns I had regarding their input into the NOR process. However, how the timeliness of their contribution into design can be matched to the Project timeline remains unclear. This concern is amplified by the possible failure to achieve agreement and the potential gap in the CEDF if agreement cannot be reached

as to input for the different iwi. My recommendation is some sort of dispute resolution process or in lieu of such, design references being made to landscape and natural character design cues (although a lack of Maori cultural input would be regrettable).

39. An explanation has been given that weighting was discussed for the individual natural character attributes, which is beneficial in gaining a better understanding of the process that was followed. However, the overall rating in the Appendix 4A Tables still appears to be a median of the ten individual attributes.
40. When undertaking a desktop assessment for some of the experiential ratings, I reach a different outcome to that shown in the Landscape and Natural Character Assessment. As a peer reviewer I would expect a method to give a replicable result. I have not found this to be the case for the attributes I have tested, so have doubts that the natural character ratings sufficiently reflect the impacts that the NOR corridor and associated road will have in this regard.
41. I have not considered options beyond the corridor applied for, but I note the agreed position of the landscape/natural character/ecology Joint Witness Conference (19 March 2019) that:

*'The best way to avoid effects of the proposed road alignment on QEII streams would be to move the alignment north to avoid direct modification of the perennial and intermittent waterways.*

*The designation corridor does not allow for avoidance.'*

42. This remains the case.

**John Hudson**

**4 April 2019**

Table 9: QEII West Stream – Change to Natural Character

West Stream (chainage 4000-6000)							
Stream from QEII West Crossing to Raupō Wetland, old growth forest							
Current state		Future state at site/reach scale				Future state at stream catchment scale	
River Component	Existing (whole catchment)	Site Embankment	Site Viaduct	Site QEII crossing (culvert & bridge)	Whole Stream embankment and QEII west crossing	Whole Stream viaduct and QEII west crossing	
Active bed	Morphology/modification	H	L	MH	M	M	MH
	Flow regime	H	M	H	MH	H	H
	Water quality	H	M	M	M	M	M
	Aquatic (indigenous taxa assemblages)	M	L	M	M	ML	M
	Ecosystem functioning	H	L	H	M	M	MH
	Exotic aquatic flora and fauna (absence)	VH	M	VH	VH	H	VH
Margin	Morphology/physical modification	H	VL	H	M	ML	MH
	Terrestrial ecology	H	VL	M	M	L	M
Context	Land use /modification	MH	M	M	M	M	M
All	Experiential	H	M	M	M	MH	MH
<b>OVERALL LEVEL OF NATURAL CHARACTER</b> * Significantly Reduced		<b>H</b>	<b>ML*</b>	<b>MH</b>	<b>M*</b>	<b>M*</b>	<b>MH</b>

○ Significant attribute rating change from Existing (1st column) to Future for Whole Stream

Table 11: QEII East – Change to Natural Character

East QEII Crossing Final alignment assessments 28.8.18		Crossing Site only		Whole Stream	
		Existing	Future crossing	Existing	Future with crossing
Active Bed	Active bed morphology/modification	H	ML	H-VH	MH
	Flow regime	H	MH	H-VH	H
	Water quality	H	M	H	M
	Aquatic (Indigenous taxa assemblages)	H	M	H-VH	H
	Ecosystem Functioning	H	M	H-VH	H
	Exotic aquatic Flora and Fauna (absence)	VH	VH	VH	VH
Margin	Morphology/Physical modification	H	L	VH	MH
	Terrestrial Ecology	H	L	H-VH	MH
Context	Land use /modification	MH	M	H-VH	H
All	Experiential	H	ML	H-VH	H
<b>Overall Level of Natural Character</b> * Significantly Reduced		<b>H</b>	<b>M*</b>	<b>H</b>	<b>H</b>

○ Significant attribute rating change from Existing (3rd column) to Future for Whole Stream

Table 9: QEII West Stream – Change to Natural Character

West Stream (chainage 4000-6000)							
Stream from QEII West Crossing to Raupō Wetland, old growth forest							
Current state			Future state at site/reach scale			Future state at stream catchment scale	
River Component	Existing (whole catchment)		Site Embankment	Site Viaduct	Site QEII crossing (culvert & bridge)	Whole Stream embankment and QEII west crossing	Whole Stream viaduct and QEII west crossing
Active bed	Morphology/modification	H	L	MH	M	M	MH
	Flow regime	H	M	H	MH	H	H
	Water quality	H	M	M	M	M	M
	Aquatic (indigenous taxa assemblages)	M	L	M	M	ML	M
	Ecosystem functioning	H	L	H	M	M	MH
	Exotic aquatic flora and fauna (absence)	VH	M	VH	VH	H	VH
Margin	Morphology/physical modification	H	VL	H	M	ML	MH
	Terrestrial ecology	H	VL	M	M	L	M
Context	Land use /modification	MH	M	M	M	M	M
All	Experiential	H	M	M	M	MH	MH
<b>OVERALL LEVEL OF NATURAL CHARACTER</b>		<b>H</b>	<b>ML*</b>	<b>MH</b>	<b>M*</b>	<b>M*</b>	<b>MH</b>
* Significantly Reduced							

 Small attribute rating change from Existing (1st column) to Future for Whole Stream

Table 11: QEII East – Change to Natural Character

East QEII Crossing Final alignment assessments 28.8.18		Crossing Site only		Whole Stream	
		Existing	Future crossing	Existing	Future with crossing
Active Bed	Active bed morphology/modification	H	ML	H-VH	MH
	Flow regime	H	MH	H-VH	H
	Water quality	H	M	H	M
	Aquatic (Indigenous taxa assemblages)	H	M	H-VH	H
	Ecosystem Functioning	H	M	H-VH	H
	Exotic aquatic Flora and Fauna (absence)	VH	VH	VH	VH
Margin	Morphology/Physical modification	H	L	VH	MH
	Terrestrial Ecology	H	L	H-VH	MH
Context	Land use /modification	MH	M	H-VH	H
All	Experiential	H	ML	H-VH	H
<b>Overall Level of Natural Character</b>		<b>H</b>	<b>M*</b>	<b>H</b>	<b>H</b>
* Significantly Reduced					

 Small attribute rating change from Existing (3rd column) to Future for Whole Stream