

**Before Hearing Commissioners
at Palmerston North**

UNDER: the resource management Act 1991

IN THE MATTER OF: an application for a **Notice of Requirement** by **New Zealand Transport Agency** to the Palmerston North City Council, Manawatu District Council and Tararua District Council for **E AHU A TŪRANGA MANAWATŪ TARARUA HIGHWAY.**

Summary evidence of Brent Clothier on behalf of **AgResearch Ltd**

Dated XX March 2019

SUMMARY EVIDENCE OF BRENT CLOTHIER

INTRODUCTION

- 1 My name is Brent Clothier.
- 2 I prepared evidence dated 15 March 2019 for AgResearch Ltd in relation to the NZTA application for a designation associated with the **E AHU A TŪRANGA MANAWATŪ TARARUA HIGHWAY**.
- 3 My qualification and experience are as outlined in that evidence.

SCOPE OF EVIDENCE

- 4 This evidence provides a summary of the main points of my evidence as filed, where I provide my expert opinion on:
 - 4.1 the significant and permanent adverse effect that the proposed Project will have on the Trial, and
 - 4.2 the implications for the integrity of future findings from the experiments should the site's hydrology be disrupted by the Project and its construction.

SUMMARY OF EVIDENCE

- 5 The Ballantrae research station long-term experiment on the impact of fertiliser and livestock management assesses the sustainability of North Island's productive hill country. It is the only trial in New Zealand that does this, making it crucial to our understanding of this land use.
- 6 The Trial is providing new understanding of the effects of hill country management. It can address contemporary production and environmental issues and also provide valuable insights on managing hill country under future climates.
- 7 The Trial, established in 1975, comprises four self-contained hill country farmlets that cover three slope-classes, three (compass) aspects and a wide range of soil types. These simulate conditions typical of the dissected hill country of the North Island.
- 8 It is the complexity of the interactions between the slopes, aspects and soils that this long-term experiment seeks to understand in order to develop sustainable practices for managing the North Island's productive hill country.
- 9 The Trial blocks contain 72 permanent soil and pasture measurement sites that are used to track the changes of the different fertiliser regimes.

- 10 Fifteen of these permanent measurement sites are inside the proposed roadworks extent and thus will disappear. Ten are inside the area of proposed land acquisition and will be permanently and significantly adversely affected by their proximity to the actual roadworks. These 25 sites are predominantly of a southerly aspect, the dominant direction of rainfall.
- 11 The road cutting disrupt the hydrological and hydraulic connections both within and between the farmlets, and will destroy the integrity and value of the long-term Trial for all four farmlets.
- 12 The disruption to the monitoring sites will irreversibly break the hydrological connectedness of the sites and will alter the nutrient dynamics of the various slope and aspect elements. The effect on the trial would be very significant and permanent.
- 13 Because the hydrological connections within and between the blocks will be compromised there will be no ability to use future experimental results from any of the blocks.
- 14 The ability to capitalise and build on Forty-four years of documented history will be lost.
- 15 The utility of the Trial will have been destroyed.

EXPERT CONFERENCING

- 16 I attended expert conferencing on 22 March 2019 to identify and discuss the effects on the long-term trials at Ballantrae research station.
- 17 I have signed a joint statement setting out the outcomes of the conferencing. I note that in that in this JWS all experts agreed that *"if the designation corridor was to remain in the same location the credibility of the ongoing/future data collected from the long-term systems trial would come to an end because of the disruption to the system and loss of permanent sites"*.
- 18 Alec Mackay has presented in his summary of evidence the key outcomes of the expert conferencing.

Dated: XXX March 2019

Brent Clothier