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Project/File: 310204904

**Matt Bonis**  
Planz Consultants Ltd  
Level 3, 79 Lichfield Street,  
Christchurch

Dear Matt,

**Reference: Nelson Airport notice of requirement analysis – Geotech and Flood Hazard MCA Review and Conditions for NoR**

### Introduction

Nelson Airport Limited ("**NAL**") is seeking to give notice to the Nelson City Council ("**NCC**") of its requirement to alter its existing designations to extend its runway. The proposed runway extension is required to ensure NAL can provide for the expected needs of future aircraft types, remove operating constraints experienced by existing aircraft, and improve safety through the provision of Runway End Safety Areas.

This memorandum is the third and final stage of the geotechnical and coastal assessments for NAL, to inform its Notice of Requirement ("**NOR**") to NCC.

Prior to preparing this memorandum, Stantec was engaged to:

1. Stage 1 – Carry out a high-level assessment to inform the Options Assessment of the NOR and identify the preferred option from a Geotechnical and Coastal effects perspective. This assessment considered the possible geotechnical and coastal engineering constraints that may influence the constructability of the two runway extension options (being Option A – northern runway extension and Option B – southern runway extension). This assessment is provided in the Geotechnical and Coastal Assessments dated October 2021 ("**Options Assessment**").
2. Stage 2 – Score Option A and Option B against criteria relating to geotechnical and coastal effects perspective for the purposes of informing the Multi-Criteria Analysis ("**MCA**") for the project. The respective options were scored against that criteria using the scoring system of +3 (significant positive effect) to 0 (neutral / change) to -3 (significant adverse effect). This MCA is included as Attachment B to the Options Assessment referred to above ("**Coastal and Geotech MCA**") which identified Option A was the preferred option.

Following the above, and the MCA for the project, we understand that Option A was also identified as the preferred option across the range of disciplines. This memorandum has been prepared as Stage 3 to the above Options Assessment and Coastal and Geotech MCA and summarises the potential effects of Option A and recommends measures to manage those potential adverse effects.

This memorandum should be read in conjunction with the Options Assessment and Coastal and Geotech MCA.

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### **Summary of the potential effects of Option A**

The most significant geotechnical effects of Option A are related to earthworks activities required to construct the extension to the northern runway (including importing of fill and pavement materials). The details related to these earthworks activities will be determined during detailed design and will be subject to subsequent regional resource consent and outline plan of works processes.

Option A has no effects on coastal risk or coastal processes.

Drainage from additional impervious areas as a result of the construction of the extended runway will be subject to treatment via wetland swales or similar, which will be progressed through detailed design. The effects will be managed through subsequent regional resource consent and outline of plan works processes. The Maire stream tributary intersects with the proposed northern Runway End Safety Area ("**RESA**") will need to be realigned around the outside of the RESA (or potentially culverted), to allow for conveyance of water, sediment and fish/eels where applicable, with the same efficiency as the existing stream. If realignment occurs, Option A will have no net effect on stormwater after mitigation.

In the event that a culvert solution was implemented, this would present a potential risk of blockage that does not currently exist and would need to be carefully managed. As a result, culverting the stream has the potential to result in greater adverse effects from an engineering perspective than realignment but this is a matter that will need to be considered and managed through detailed design and the subsequent regional consenting process.

### **Recommended mitigation measures to manage adverse effects of the preferred option**

As set out above, although Option A has potential adverse effects, these effects can be managed with appropriate mitigation. We understand that some of these measures will be implemented through the NoR process and some through the subsequent regional resource consent processes.

In terms of adverse effects associated with Geotech and Flood hazard, these effects can be avoided, remedied or mitigated through detailed design and subsequent regional consenting pathways. The mitigation recommended below (which will be relevant at those subsequent stages) will assist with achieving a sustainable approach to the development of airport infrastructure, facilities and services as associated with Geotech and Flood hazard.

- 1) A geotechnical ground investigation is undertaken to support detailed design of the northern runway option and associated infrastructure.**
- 2) The investigation under (1) should, as a minimum, assess geotechnical, pavement and earthworks project design requirements.**
- 3) Following the ground investigation under (1), a factual geotechnical report shall be produced summarising investigations undertaken together with geotechnical and pavement design reports.**
- 4) Where practicable, fill materials used in earthworks should be sourced from within the Option A site area, in order to reduce material haulage, associated emissions and environmental outcomes.**
- 5) All geotechnical and pavement related work shall be undertaken by suitably qualified and experienced persons.**

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**6) Any future stream realignment design must not exacerbate existing flood risk.**

Detailed requirements for Finished Ground Level's ("FGL") and Finished Floor Level's ("FFL") are not pertinent to securing the northern extension Designation in which effects can be minimised or managed. FGL's and FFL's would be a function of the design and measures to manage risk to Nelson Airport assets, and are to be addressed at a later stage of the resource consenting process.

If you have any queries, please do not hesitate to contact James Newton or the undersigned.

Yours sincerely,

**STANTEC NEW ZEALAND**



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cc James Newton