BEFORE COMMISSIONER MARK ST. CLAIR APPOINTED BY NEW PLYMOUTH DISTRICT COUNCIL

UNDER	the Resource Management Act 1991 ("RMA")
IN THE MATTER	of an application under section 88 of the Act by **ROBE AND ROCHE INVESTMENTS LIMITED** to the **NEW PLYMOUTH DISTRICT COUNCIL** for a subdivision to create 113 residential lots and additional road and recreational reserves at 56 Pohutukawa Place, Bell Block. (SUB21/47803)

STATEMENT OF EVIDENCE KRISTEL FRANKLIN FOR SUBDIVISION CIVIL DESIGN ON BEHALF OF ROBE AND ROCHE INVESTMENTS LIMITED

1. INTRODUCTION

1.1 I Kristel Franklin am presenting evidence in support of the proposed development with respect to Geotechnical Considerations. Evidence scope, qualifications, and practice fields are detailed below.

1.2 **Evidence Scope – Geotechnical Considerations**

My full name is Kristel Franklin ("Kristel"). I am a Senior Engineering Geologist at Red Jacket Ltd ("RJL") and hold a MSc (Hazard and Disaster Management), BSc (Geology), CMEngNZ PEngGeol (Professional Engineering Geologist). I have 12 years' experience in the Taranaki region as an engineering geologist, and over 20 years' experience nationally. My practice area is geotechnical engineering, with particular focus on natural hazard risk assessments, geotechnical investigations, foundations and earthworks design.

1.3 This evidence is given in support of the subdivision and land use consent application ("the application") lodged by Robe and Roche Investments Limited ("the applicant"), to subdivide the land at 56 Pohutukawa Place, Bell Block into 113 residential lots and associated road and recreational reserves.

1.4 I am authorised to give this evidence on behalf of the applicant.

2. INVOLVEMENT IN THE PROJECT

2.1 RJL's involvement in the application has included:

(a) Initial meetings and consultation with NPDC, client, and McKinlay Surveyors early 2021 to establish subdivision design and consenting requirements.

(b) Ongoing consultation with NPDC, TRC, and the applicant to refine the civil engineering design.

(c) Preparation of civil design drawings and engineering report to support an NPDC subdivision consent application, delivered to the applicant and NPDC mid-2021.

(d) Completed a sanitary sewer main renewal assessment and design for NPDC. Civil design drawings and options report issued to NPDC mid-2022.

(e) Completed a hydrological analysis of the proposed development including stormwater management and treatment design to support a Taranaki Regional Council ("TRC") consent application, delivered to the applicant and TRC late-2024.

(f) Revised civil design drawings incorporating feedback from all parties involved, issued early-2025. Revised drawings circulated to NPDC roading and infrastructure team at that time.

(g) Completed a preliminary stage road design memo outlining the basis of design for the proposed roading network.

(h) Completed a Geotechnical Review of the 'Red Jacket Engineering Report – Proposed Development' dated May 2021.

2.2 RJL has also reviewed the following documents produced with the application, including:

(a) The original application for consent dated 26 May 2021;

(b) The 'Addendum to Application for Resource Consent 56 Pohutukawa Place' dated 8 July 2021;

(c) The associated scheme plans for the development dated 6 August 2021;

(d) The 'Archaeological Assessment' dated November 2021;

(e) The 'Consultation Summary';

(f) The 'Mounga Ecology Ecological Statement on Road 2 and Water Quality Standards' dated 11 August 2021;

(g) The 'Mounga Ecology Wetland Delineation Map' dated 24 June 2021;

(h) The 'Mounga Ecology Wetland Delineation Results and Assessment Against National Environmental Standards – Freshwater 2020' dated 28 June 2021;

(i) The 'Red Jacket Earthworks Plan, DWG-100-433 Rev D' dated 25 May 2021;

(j) The 'Red Jacket Engineering Drawings, DWG-100-433 Rev D' dated 25 May 2021;

(k) The 'Red Jacket Engineering Drawings, DWG-100-433 Rev E C1 3 and C1 4 amendments' dated 5 August 2021; and

(l) The 'Red Jacket Engineering Report– Proposed Development RPT-3917-01 Rev A' dated May 2021.

(m) The 'Red Jacket Engineering Report – Stormwater Management RPT-3917-02 Rev B' dated August 2024.

(n) The 'Red Jacket Engineering Report – Sewer Main Renewal RPT-4458-01 Rev C' dated May 2022.

(o) The 'Red Jacket Preliminary Stage Road Design Memo MEM-3917-C-01 Rev C', dated 25th March 2025.

(p) The 'Red Jacket Engineering Drawings, DWG-3917-C-01 Rev A' dated March 2025;

(q) Assessment of Potential Ecological Effects, Pohutukawa Place, Bell Block, Report No. 6969, Willie Shaw, Wildlands Consultants Ltd, 11/10/2024;

(r) Joint Witness Statement Transport, Andy Skerrett and Mark Georgeson, 7 March 2025.

3. CODE OF CONDUCT

3.1 I confirm that I have read the Code of Conduct for expert witnesses contained in the 2023 Environment Court Practice Note and that I agree to comply with it. I confirm I have considered all the material facts that I am aware of that might alter or detract from the opinions I express. In particular, unless I state otherwise, this evidence is within my sphere of expertise, and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

4. PURPOSE AND SCOPE OF EVIDENCE

4.1 In this matter, RJL has been asked by the applicant to address the civil design of the proposed development with particular focus on stormwater management and roading network design.

4.2 RJL confirms that it has read the submissions on the Application relevant to its expertise and the Council Officer's Report. The assumptions, assessment and conclusions set out in the Red Jacket engineering drawings and reports noted in Section 2.2 above remain valid.

4.3 Except where my evidence relates to contentious matters, I propose to only summarise the conclusions set out in my expert technical reports as detailed below,

(a) The 'Red Jacket Engineering Report– Proposed Development RPT-3917-01 Rev A' dated May 2021;

(b) The 'Red Jacket Engineering Report – Stormwater Management RPT-3917-02 Rev B' dated August 2024;

(c) The 'Red Jacket Engineering Report – Sewer Main Renewal RPT-4458-01 Rev C' dated May 2022; and

(d) The 'Red Jacket Preliminary Stage Road Design Memo MEM-3917-C-01 Rev C, dated 25th March 2025.

4.4 My evidence is structured as follows:

(a) Summary (Section 5);

(b) Geotechnical Considerations (Section 6);

(c) Officer's Report and Consent Conditions (Section 7); and

(d) Conclusions (Section 8).

5. SUMMARY

5.1 The key engineering related issues within my expertise in my opinion are:

(a) Suitability of the existing site for residential development in terms of a natural hazards assessment.

5.2 By way of a summary, my detailed analyses and assessments enable me to confidently conclude that:

(a) A natural hazards assessment has been undertaken with risk levels found to be acceptable. The proposed subdivision is suitable for residential development in terms of geotechnical matters.

6. GEOTECHNICAL REVIEW

6.1 A review of the site suitability in terms of geotechnical matters relating to the proposed subdivision has been undertaken.

6.2 Site-specific deep testing completed by RJL in January 2021 identified variable ground conditions. The six machine augered boreholes extended to depths between 8m and 16m below ground level (bgl).

6.3 At Test locations 1 and 2 the topsoil layer was underlain by various layers of 'sandy silt and sand' to a depth of 16m, and predominantly comprised Taranaki Brown Ash. At Test locations 3 to 6, peat was encountered between depths of approximately 5m to 13m bgl.

6.4 In terms of the proposed activity (subdivision), Section 106 of the Resource Management Act 1991 requires an assessment to determine whether there is a 'significant' risk from natural hazards, including the likelihood of occurrence and any associated material damage to land, structures and/or neighbouring properties (i.e. other land). In addition, consideration is also required to assess whether the activity could accelerate, worsen, or result in material damage due to natural hazards.

6.5 The assessment completed below considers the following natural hazards: earthquakes; erosion and sedimentation; subsidence; land slippage and falling debris. Inundation is not included in this assessment as it has been covered in the stormwater management design for the development. Other natural hazards, including tsunamis, sea level rise, and coastal inundation, are not assessed due to the site elevation. We have also considered the risk

of wind, drought, fire, geothermal activity, and volcanic activity and conclude these are very unlikely to pose an unacceptable risk to the proposed activity.

6.6 *Earthquakes*: The earthquake shaking hazard is defined in the New Zealand National Seismic Hazard Model (NSHM), which calculates the likelihood and strength of earthquake shaking occurring in different parts of New Zealand. The model is used by a variety of end-users to estimate the likely impact of earthquakes on New Zealand land, buildings, and infrastructure.

6.7 Earthquake shaking can cause land instability and structural damage. The levels of earthquake shaking, considered in residential land and building developments, are defined as:

- Serviceability Limit State (SLS) 1 in 25-year return period event,
- Intermediate Limit State (ILS) 1 in 100-year return period event, and
- Ultimate Limit State (ULS) 1 in 500-year return period event.

The strength of earthquake shaking is incorporated into industry design guidance, including New Zealand Standards (NZS) 1170.5, NZS 3604:2011 and NZGS/MBIE Module 6. Provided that the design of buildings, infrastructure and retaining walls (if required) are in accordance with current industry standards, the consequences of earthquake shaking is assessed as appropriately managed and the overall risk to the proposed subdivision is acceptable.

A review of the GNS active fault database indicates there are currently no known active faults across the site, and accordingly the risk of fault rupture is assessed as very low.

6.8 *Erosion and Sedimentation*: No active erosional processes were documented in the 2021 report by RJL. All stormwater runoff from roofs, retaining walls, footpaths, roads, driveways, and any other hardstand areas will be captured and piped, or channelled, to an approved stormwater discharge point, in a manner that avoids the risk of erosion and slope instability.

We have assessed the risk of erosion/sedimentation and determined that it will remain low after the site is developed. An Erosion and Sediment Control Plan shall be in place for any earthworks or construction at the site, in accordance with good management practices, including consideration of hillslope developments.

6.9 *Subsidence*: We have assessed that liquefaction damage is unlikely, and a low liquefaction vulnerability is considered appropriate for the proposed activity. While the boreholes recorded silty sand and sand, the Taranaki Brown Ash is not typically prone to liquefaction-induced subsidence as the soil behaves as a fine-grained soil, more commonly classified as a clayey silt/silty clay.

Foundation design to an acceptable industry standard and the New Zealand Building Code will be appropriate for this site.

Foundations should be designed in accordance with MBIE/NZGS Module 4: *Earthquake resistant foundation design*. Following adherence to best industry practice during any future earthworks, we consider the risk of subsidence is currently low, and will remain low after the site is developed.

6.10 *Land slippage*: The land topography is variable (i.e., gentle to moderately sloping) and is not currently subject to slippage based on site observations during the walkover inspection in 2021. No surface evidence of land slippage was identified in a review of available recent aerial imagery from 2001 available from Google Earth.

An overall low risk is considered appropriate of land slippage at present and once the site is developed, subject to controlling stormwater discharges.

6.11 *Falling debris*: An overall low risk is considered appropriate at present and once the site is developed, due to the absence of a source area for falling debris.

6.12 *Summary*: The natural hazards have been assessed with risk levels found to be acceptable, providing normal good practice design and development controls for hillslope properties are implemented. We have assessed there are no risks from natural hazards that would prevent the granting of a subdivision consent.

The assessment has concluded that the proposed subdivision is suitable in terms of geotechnical matters.

The development for each new allotment should be supported by a site-specific geotechnical investigation and report that comments on any specific geotechnical requirements for the building foundations, and any requirements for excavation and filling earthworks and retaining walls (if required).

7. OFFICERS REPORT AND CONSENT CONDITIONS

7.1 I have read the Officer's Report; and the proposed consent conditions relevant to my field of expertise. I consider the following amendments are required:

7.2 Proposed consent condition 48a: replace 'engineer' with 'geo-professional' for clarity, and consistency with proposed consent condition 50.

7.3 Proposed consent condition 48b: replace 'uncompacted' with 'non-engineered'.

7.4 Proposed consent condition 49: advice note refers to 'landfill', suggest replacement with 'landform'.

8. CONCLUSIONS

8.1 My conclusions are summarised in Sections 5.2 and 6.12 of my evidence above; and I have found no engineering related issues in respect of the proposal that are an impediment to the granting of consent (subject to appropriate conditions, and my comments above), within the context of my expertise.

Kristel Franklin, Senior Engineering Geologist
Red Jacket Ltd

28 March 2025