BEFORE THE INDEPENDENT HEARINGS PANEL
OF HAMILTON CITY COUNCIL

UNDER	the Resource Management Act 1991 ("**RMA**")
AND	
IN THE MATTER	of Private Plan Change 17 to the Hamilton City Operative District Plan ("**PC17**")

STATEMENT OF EXPERT EVIDENCE OF SHANE ROBERT MOORE ON BEHALF OF FONTERRA LIMITED

CONTAMINATION

7 OCTOBER 2025

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1. EXECUTIVE SUMMARY

1.1 I have reviewed ground contamination investigations undertaken across the "Plan Change Area" being approximately 91 hectares surrounding Fonterra's Te Rapa Dairy Manufacturing Site, by Soil & Rock Consultants ("**Soil & Rock**"). This included testing of shallow soil samples from 34 locations across the Plan Change Area for heavy metals, organochlorine pesticides and asbestos. I generally agree with the scope of work and analysis undertaken by Soil & Rock to characterise ground contamination conditions.

1.2 Contamination conditions present in the Plan Change Area are entirely consistent with my experience of similar rural and rural residential properties. Overall, the conditions do not present an unacceptable risk to human health or the environment, but some localised impact to soil around existing structures is expected.

1.3 Localised impacts to soil in the immediate vicinity of existing structures can be addressed when these are demolished, for example by scraping surficial soil and fill for offsite disposal to an appropriate facility (likely landfill). Less than minor effects will arise from these works if they are conducted in accordance with an appropriate Site Management Plan ("**SMP**").

1.4 The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 ("**NESCS**") provides an appropriate regulatory mechanism to address the expected contamination conditions. Relevant consents should be sought (where necessary) when specific subdivision, change of use or soil disturbance activities are proposed to occur. This will provide for the development of a SMP and associated conditions of consent to appropriately address any specific effects.

2. INTRODUCTION

Qualifications and Experience

2.1 My name is Shane Robert Moore. I am a Principal Contaminated Land and Environmental Advisor at Williamson Water & Land Advisory ("**WWLA**"). I joined WWLA in 2022.

2.2 I have 30 years of experience in the field of environmental management,

specialising principally in the assessment, remediation, and management of contaminated land and groundwater. Prior to WWLA I worked as a Principal Environmental Scientist at Tonkin & Taylor (2010 – 2022), as New Zealand Environmental Manager at Tetra Tech Coffey (2008 – 2010), Team Leader (Land Contamination) at Beca (2008) and as a Principal at URS Corporation (1996 – 2008).

2.3 I hold a Bachelor of Science and Master of Science in Geology from the University of Auckland (1996).

2.4 I am a member of the Australasian Land and Groundwater Association, currently acting as the co-chair of its Auckland Branch committee.

2.5 I have appeared as an expert witness on ground contamination matters at Council, Environment Court, and High Court hearings on a number of occasions. The attached curriculum vitae summarises my experience across a wide range of residential, commercial and public land development projects, many of which have similar contamination issues to Private Plan Change 17 ("**PC17**").

Involvement in PC17

2.6 I have reviewed the Soil Contamination Report prepared by Soil & Rock to inform and support PC17.

2.7 Following the preparation of the Soil Contamination Report, Fonterra Limited ("**Fonterra**") and its planning advisors had asked Soil & Rock to provide further interpretation of the ground contamination implications in the context of PC17. I became involved in PC17 as Soil & Rock was no longer providing contaminated land services. I provided my advice in the Contamination Review Report.[1]

2.8 Soil & Rock completed its investigation of the Fonterra-owned land within the Plan Change Area on 17-20 July 2023 ("**Field Investigation**"). Due to access constraints, the Field Investigation undertaken by Soil & Rock was limited to the land owned by Fonterra within the Plan Change Area at the time (see Figure 1).

2.9 I am familiar with the Plan Change Area, through my review of the Soil Contamination Report (and March 2025 update to it). I also completed a

[1] Fonterra Te Rapa Site, Hamilton – *Contaminated land support* (Williamson Water & Land Advisory, July 2024).

walkover of the Fonterra-owned land within the Plan Change Area on 3 October 2025.

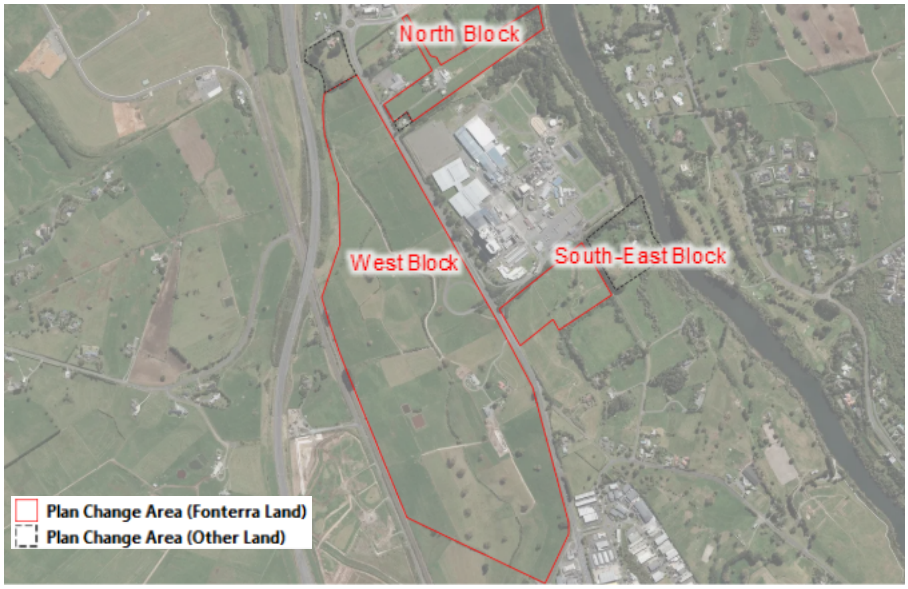

Figure 1: Plan Change Area – Fonterra-owned land in July 2023 shown in red (Aerial Source: LINZ Data Service)

Code of Conduct

2.10 I confirm that I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2023. I have complied with the Code of Conduct in preparing this evidence and I agree to comply with it while giving oral evidence before the Hearings Commissioners. Except where I state that I am relying on the evidence of another person, this written evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.

3. PC17

3.1 PC17 seeks to rezone the Plan Change Area to Te Rapa North Industrial Zone under the Hamilton City Operative District Plan ("**ODP**"). This is achieved by removing the Deferred Industrial Zone Area which currently overlays the majority of the Plan Change Area.

3.2 The Plan Change Area is made up of three distinct areas (see Figure 1), described as:

(a) West Block: Section 1 & 3 SO 456626, Part Lot 1 DPS 10804, Lot 1 DPS 34481, Part Lot 2 DPS 10804, Lot 1 – 6 DPS 11087;

(b) North Block: Lot 1 DP 551065 and Lot 1 DPS 8230; and

(c) South-East Block: Lot 5 DPS 18043, Lot 1 DPS 85687 and Lot 1-3 DPS 61136

4. SCOPE OF EVIDENCE

4.1 This statement of evidence will:

(a) outline the previous and current activities and land uses of the PC17 area as they relate to potential to have resulted in ground contamination;

(b) summarise the soil and ground water assessment;

(c) respond to land contamination matters raised in the Hamilton City Council ("**Council**") Officer's Section 42A Report ("**Section 42A Report**"); and

(d) provide an overall conclusion on Fonterra's application for PC17 from a land contamination perspective.

5. PC17 AREA

5.1 The Plan Change Area is currently utilised for rural and residential uses. Built development across the West Block comprises dwellings, a milking shed, and farming sheds / workshops. Structures in the North Block include two dwellings and a barn / shed / workshop. A dwelling and two sheds / workshops are present in the eastern-most portion of the South-East Block. A previous dwelling and other structures in the western portion of the South-East Block have been demolished.

5.2 The Plan Change Area is primarily underlain by Hinuera Formation alluvial soils (silty sand) of the Piako Subgroup.

5.3 The nearest large surface water body to the Plan Change Area is the Waikato River, which flows along the eastern border of the North Block and the South-East Block. Surface water flows across the West Block are collected by the Te Rapa Stream which flows to the north, ultimately discharging into the Waikato River some 2 km north of the Plan Change Area.

5.4 Groundwater was encountered between 0.5m and 4.0m below ground level ("**bgl**") during Soil & Rock's Field Investigation. Regional groundwater flow direction is expected to be to the east towards the Waikato River.

5.5 The Plan Change Area has largely remained under pastoral farming use during its European history. Built development has been limited to dwellings and associated sheds, stables, barns, stock yards, milking facilities (and similar) typical of pastoral farming activities. No evidence of activities with potential to cause significant ground contamination, such as sheep or cattle dipping facilities or intensive horticulture, was identified by the review of the Plan Change Area's history.

5.6 While it was described by Soil & Rock as "earthworks", my review of historic aerial photographs suggests that the northern portion of the West Block was also used for sand and / or gravel quarrying circa 1970s and 1980s. Ancillary activities associated with quarrying, for example fuel storage and refuelling or equipment maintenance and workshops, have the potential to result in ground contamination.

5.7 However, as only limited built development was associated with the quarrying activity, I consider there to be minimal potential for significant ground contamination to have arisen from it. If localised contamination is identified in future it can be dealt with in the same manner I describe in relation to farming infrastructure later in my evidence (refer to Paragraphs 6.8 and 6.9).

6. SOIL AND GROUNDWATER ASSESSMENT

6.1 Soil & Rock tested shallow soil samples from 34 locations across the Plan Change Area (plus five samples of deeper soils) for heavy metals, organochlorine pesticides ("**OCPs**"), and asbestos. I generally agree with the analysis undertaken by Soil & Rock, as it reflects typical rural and rural residential contaminants. For completeness I would have included some assessment of hydrocarbons as these are often associated with fuel and equipment storage areas or workshops on rural properties. However, I do not consider that the absence of this data materially affects the conclusions reached by SRC.

6.2 The laboratory analytical results identified that:

(a) Heavy metals concentrations were present above predicted background levels in 19 of the 42 soil samples. However, only the concentration of arsenic in one soil sample exceeded applicable criteria for the protection of human health; and

(b) Neither asbestos nor OCPs were detected above the laboratory limit of reporting in any of the samples tested.

6.3 Soil & Rock also tested three shallow groundwater samples which showed that the concentrations of metals and common nutrients complied with drinking water standards but marginally exceed some guidelines for the protection of surface water quality.

6.4 Based on these findings Soil & Rock recommended that prior to future earthworks or development of the Plan Change Area:

(a) Consent would likely need to be obtained under the NESCS to support the proposed plan change (being equivalent to a change in use);

(b) Further soil sampling should be conducted to fulfil the requirement for a Detailed Site Investigation ("**DSI**"); and

(c) A SMP and / or Remediation Action Plan should be prepared for the site based on findings of the DSI to ensure that site conditions are protective of human health and the environment.

6.5 I generally concur with these conclusions except that I interpret the requirement for consent under the NESCS would only be triggered when subdivision or change of use is proposed or soil disturbance is to occur around the existing structures. At that point, the SMP and associated conditions of consent can be developed to appropriately address any specific effects. The plan change process alone should not trigger the need for this consent.

6.6 Future development will also need to comply with requirements under the Building Act 2004 ("**Building Act**") (consent for demolition) and / or Health and Safety at Work (Asbestos) Regulations 2016 ("**H&SAW Regulations**"), which will ensure that any minor soil contamination associated with existing structures is appropriately addressed when they are removed.

6.7 The primary sources of ground contamination at the Plan Change Area appear to be:

(a) Localised anthropogenic impacts around existing structures and / or farm infrastructure. These impacts may locally exceed standards for the protection of human health and the environment but are typical of the effects of urban activities; and

(b) Diffuse contamination resulting from the application of fertiliser and / or irrigation of dairy wastes, as evidenced by above background

concentrations of cadmium in soils and phosphorus in shallow groundwater.

6.8 These sources of contamination are entirely consistent with my experience of similar rural and rural residential properties.

6.9 Other than in the immediate vicinity of existing structures, soil contamination does not present a risk to human health. The localised impact identified in the immediate vicinity of existing structures can be addressed when these are demolished, for example by scraping surficial soil and fill for offsite disposal to an appropriate facility (likely landfill). A simple checklist SMP would be sufficient to manage potential effects arising during this process. Given the low risk profile it should be acceptable to provide an SMP as a condition of consent, prior to demolition and earthworks occurring.

6.10 Further targeted soil sampling will be required to confirm that localised impacts around existing structures have been adequately identified and removed. However, I consider that the sampling completed by Soil & Rock across the broader Plan Change Area is sufficient to fulfil the requirements of a DSI to a degree of detail commensurate with the potential contamination effects arising from those areas.

6.11 From a ground contamination perspective, soils across the wider Plan Change Area can be reused onsite without constraint. While surficial soils contain slightly above background concentrations of metals, the concentrations comply with the relevant standards for the protection of human health and the environment under both agricultural and commercial / industrial land uses.

6.12 While shallow groundwater contains copper (and in one instance zinc) and phosphorus above the guidelines for the protection of surface water quality, these guidelines are applied after reasonable mixing has occurred in the receiving environment. The concentrations measured in groundwater are unlikely to be an issue once mixing has occurred in the receiving streams and rivers. It is also possible that the measured concentrations represent ambient conditions in the vicinity of the Plan Change Area.

7. SECTION 42A REPORT

7.1 I have reviewed the Section 42A report and note that Council's Reporting Officer's assessment is consistent with my own, noting at paragraph 6.47 that

> …the guidelines listed within the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health does not strictly apply at this stage but may apply as part of future consenting activities.

8. CONCLUSION

8.1 In conclusion, contamination conditions present in the Plan Change Area are entirely consistent with my experience of similar rural and rural residential properties. Overall, the conditions do not present an unacceptable risk to human health or the environment, but some localised impact to soil around existing structures is expected.

8.2 Localised impacts to soil in the immediate vicinity of existing structures can be addressed when these are demolished, for example by scraping surficial soil and fill for offsite disposal to an appropriate facility (likely landfill). Less than minor effects will arise from these works if they are conducted in accordance with an appropriate SMP.

8.3 The NESCS provides an appropriate regulatory mechanism to address the expected contamination conditions. Consent should be sought (where necessary) when specific subdivision, change of use or soil disturbance activities are proposed to occur. This will provide for the development of a SMP and associated conditions of consent to appropriately address any specific effects.

8.4 Any future development will also require compliance with the Building Act (consent for demolition) and / or H&SAW Regulations, which will ensure that any minor soil contamination associated with existing structures is appropriately addressed when they are removed.

Shane Robert Moore
7 October 2025