

**BEFORE THE HEARING PANEL**

**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** of Proposed Plan Change 8 to the Operative Rotorua District Plan

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**STATEMENT OF EVIDENCE OF JOHN JOSEPH BRZESKI  
ON BEHALF OF ROTORUA LAKES COUNCIL  
(Geothermal and land stability hazards)  
Dated 13 March 2026**

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TOMPKINS | WAKE

Westpac House  
Level 8  
430 Victoria Street  
PO Box 258  
DX GP 20031  
Hamilton 3240  
New Zealand  
Ph: (07) 839 4771  
[tompkinswake.co.nz](http://tompkinswake.co.nz)

## **INTRODUCTION**

1. My full name is John Joseph Brzeski, and I am a Senior Engineering Geologist at Tonkin & Taylor Limited (T+T).

### **Qualifications and experience**

2. I hold the qualifications of Bachelor of Science with Honours in Applied Geology from Kingston University, London and Master of Science in Geohazard Assessment and Management from the University of Portsmouth, both in the United Kingdom.
3. I have held the position of Engineering Geologist with T+T for 6 years and have twenty years of experience in Engineering Geology in New Zealand and the United Kingdom.
4. I was engaged by Rotorua Lakes Council (Council) to provide technical advice on geothermal and land stability hazards for Council's Proposed Plan Change 8 (Natural Hazards) (PC 8). I previously provided technical advice to the Council relating to geothermal hazards for Plan Change 9 (Housing for Everyone).

### **Code of conduct**

5. I have read the Environment Court Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2023 and agree to comply with it. I confirm that the opinions expressed in this statement are within my area of expertise except where I state that I have relied on the evidence of other persons. I have not omitted to consider materials or facts known to me that might alter or detract from the opinions I have expressed.

### **Scope of evidence**

6. My evidence provides the following:

- (a) A description of the changes that are proposed by PC 8 relating to geothermal and land stability hazards.
- (b) An evaluation of matters raised in submissions relating to geothermal and land stability hazards.

### **EXECUTIVE SUMMARY**

- 7. In my opinion, subject to the recommendations in my evidence, PC 8 will strengthen Council's ability to manage risks from ground instability (soft soils and landslides) hazards by placing limits on the amount and location of earthworks and providing a mechanism for making up to date hazard/susceptibility information available. Based on my experience, the policy, rules and exemptions represent the current practice within the Council and provide an efficient and effective process for identifying and managing ground instability hazards.
- 8. The recent release of the Regional Infrastructure Technical Specification (RITS) v2 earthworks section provides further clarification and guidance to practitioners with regard to the assessment of soft soils and land stability hazards. It is recommended that this is widely communicated to the engineering community by Council.

### **BACKGROUND**

- 9. I have been involved in the development of PC 8 since the scoping stage, attending interviews with staff and providing feedback on an options paper developed for technical experts and key stakeholders, which informed the development of the Section 32 Report and proposed changes. I also provided feedback on the draft Section 32 Report. My participation has been limited to hazards within my experience and knowledge: land stability hazards, geothermal hazards and active faults.
- 10. In addition to assisting in the development of PC 8, I have also assisted the Council to develop related policy, as detailed below:

- (a) I assisted the Council to develop the geothermal provisions of Plan Change 9, which are now proposed to be further refined and extended through PC 8. This included the development of the report *Geothermal hazard risk review for residential dwellings and their occupants in Rotorua City (v5)* (T+T, 2022), which is referenced in the Section 32 Report for both plan changes.
  - (b) I was a member of the working group to assist in preparing Council's guidance document *Identifying and Designing for Geothermal Hazards, Guidelines for Buildings and Associated Site Works in Rotorua District* (Rotorua Lakes Council, 2024), which supports the implementation of geothermal rules in the District Plan. A copy is included as Appendix 1 to my evidence.
11. In parallel to plan change and policy support, I also assist Council in their processing of resource and building consents by assessing geotechnical matters related to proposed developments.
12. As part of a separate engagement, I assisted Council, on behalf of CoLAB, in producing updated earthworks and geotechnical requirements for inclusion in the RITS v2. The RITS v2 document is intended to be used by geotechnical professionals for the purposes of assessing the earthworks and geotechnical requirements for a land development project. The RITS v2 includes relevant guidelines and standards that can be used to meet the requirements for demonstrating suitability of a site.
13. At the time of writing, and to the best of my understanding, the best available information relating to land stability and geothermal hazards in the Rotorua District are summarised in Table 2.6.1 of the Section 42A Report and include liquefaction, soft soil and landslide hazard susceptibility mapping, geothermal system mapping, databases of subsurface test data and information provided in site-specific geotechnical assessments.

## GEOTHERMAL HAZARDS

### PC 8 provisions

14. With respect to geothermal hazards, PC 8 proposes to:
- (a) Retain mapping of geothermal systems in the District Plan to identify where geothermal rules apply.
  - (b) Extend subdivision Rule SUB-R42 (which sets out a discretionary activity for subdivision of buildings or land within the Rotorua Geothermal Systems Overlay or affected by a geothermal feature, geothermal activity or bore) and performance standard SUB-P8(2) (which requires an assessment of risks and proposed measures to address the risks in these areas) so that they apply to all geothermal systems in the overlay, not just the Rotorua Geothermal System. It also proposes to delete reference to geothermal activity on the basis that the mapped overlay provides greater certainty about where the rules apply.
  - (c) Retain Rule NH-R6 requiring 5 m setbacks from geothermal surface features and bores.
  - (d) Extend Rule NH-R8 developed for the Rotorua Geothermal System to all geothermal systems. This requires an assessment of geothermal hazards and associated mitigation measures to be provided when applying for building consent for new buildings or building additions exceeding 20 m<sup>2</sup>. It also proposes to address situations where buildings do not require building consent due to recent changes to the Building Act 2004 by proposing a new restricted discretionary activity for residential units or additions to residential units that increase a building footprint by more than 20 m<sup>2</sup> but do not require a building consent.
  - (e) Amend Policy NH-P3 addressing geothermal hazards in the context of co-existence with Māori villages.

- (f) Extend proposed Policy NH-P3, existing Policy NH-P4, and geothermal rules NH-R6 (setbacks from geothermal surface features and bores) and NH-R8 (geothermal assessment at the time of building) to the Lakes A Zone.

### **Evaluation of submissions**

15. I have considered the submissions related to geothermal hazards within my field of expertise and respond below.

#### *Assessment of geothermal hazards and associated mitigation measures (NH-R8)*

16. With regard to the extension of NH-R8 to all other geothermal fields within the Geothermal Overlay, Rotorua Planning Consultants Group (39.6) states that not all fields contain known hazards. They request a more refined approach based on areas containing specific geothermal hazards. Bay of Plenty Regional Council (BOPRC) (45.44) considers that whilst the field boundaries may not have all been created with the express purposes of hazard mapping, they consider them to be an appropriate proxy due to the higher likelihood of encountering geothermal hazards in these areas.
17. I agree with the BOPRC submission on this matter. A number of different approaches to mapping the Rotorua geothermal system boundary were considered as part of Plan Change 9, which highlighted the dynamic nature of geothermal systems. It was therefore concluded that a precautionary approach would be appropriate. The Council's guidance document *Identifying and Designing for Geothermal Hazards* provides context for each geothermal field and a simple pathway for low-risk areas or low risk proposals. I consider that the nature of the assessments suggested within the Council's guidance document would generally form part of reasonable enquiry for site suitability in any case.

## LAND STABILITY HAZARDS

### PC 8 provisions

18. With respect to land stability hazards, PC 8 proposes to:
- (a) Remove landslide susceptibility and soft soil maps from the District Plan.
  - (b) Make minor changes to clarify wording in existing subdivision performance standards SUB-S8(3) and SUB-S9(1) to remove the requirement for building platforms to be free of hazards. This is to acknowledge that low risk sites can still be developed subject to engineering design. Current practice allows for this by providing statements within Geotechnical Completion Reports at the time of issuing title. Consent notices can be placed on titles to inform property owners of requirements and building consents address the residual risk.
  - (c) Amend the performance standards for permitted earthworks in specific zones relating to volume, depth and height of cut face as follows (EW-S1):
    - (i) Reduce the maximum volume in any 12-month period for permitted earthworks in Industrial Zones and Business and Innovation Zones from 1,000 m<sup>3</sup> to 100 m<sup>3</sup>, to align with all other zones in the main part of the District Plan (1,000 m<sup>3</sup> is retained as the permitted volume for the Rural 1 Zone).
    - (ii) Reduce the maximum fill depth for permitted earthworks in Industrial Zones, Business and Innovation Zones and the Rural 1 Zone from 5 m to 450 mm, in line with all other zones.

- (iii) Reduce the maximum cut face of permitted earthworks in Industrial Zones, Business and Innovation Zones and the Rural 1 Zone from 3 m to 1.5 m, in line with all other zones.
  - (d) Amend the exemption from the requirement to meet permitted activity performance standards for earthworks associated with building platforms and subdivision (EW-S1(3)(a)(i)).
  - (e) Insert a land stability policy (NH-P2) to clarify practice to assess land stability at subdivision and extend this policy to the Lakes A Zone.
19. The evaluation of these proposed amendments to earthwork standards in the Section 32 Report explained that the lower thresholds are intended to reduce the potential for adverse effects associated with land disturbance, such as instability, over steepened slopes, and uncontrolled runoff. Requiring resource consent for larger-scale earthworks allows for site-specific assessment and conditions to manage instability risk. In my opinion, this approach is more precautionary and improves the ability to avoid or mitigate the effects of hazard-prone land use.

### **Evaluation of submissions**

20. I have considered the submissions related to land stability hazard within my field of expertise and respond below.

#### *Removal of landslide susceptibility and soft soil maps from the District Plan*

21. Two submitters, the Natural Hazard Commission (22.2) and R & B Property Group (54.2), oppose the removal of these hazard maps from the District Plan, for reasons relating to the lack of opportunity to challenge the information by way of submission to a plan change. Conversely, numerous submitters support the proposal to remove the maps as it allows for updated information to be used to support decision-making.

22. I support the removal of maps from the District Plan to allow for more efficient updating of information. Maps must continue to be available on the Council's GIS to provide users with the most up to date data for decision-making. Mapping should be maintained and updated when new information is provided. Updated data should include reporting that allows the user to understand the source of information and its context. Although the maps for soft soils and landslide susceptibility are included in the current District Plan, there are no controls associated with them and practitioners would be expected to make reasonable enquiry as to ground conditions as they relate to their property or proposal. These maps are not hazard maps, they are susceptibility maps, and as such indicate a potential or relative risk rather than event certainty. Susceptibility maps are often used as a screening tool as a trigger for further assessment rather than triggering rules.

*Subdivision Performance Standards (SUB-S8(3) and SUB-S9(1))*

23. Submissions support the proposed amendments with the Natural Hazards Commission (NHC) also proposing an amendment to SUB-S8(3) to include reference to specific guidelines that should be followed to demonstrate suitability (22.25). Kāinga Ora (42.7) and BOPRC (45.34) oppose NHC's amendment in favour of using general terms or an advice note to account for changes in best practice or updates to guidelines.
24. I don't consider NHC's suggested amendment to include specific reference to guidance documents is needed. While this is helpful to practitioners, the same information is presented in the RITS v2 document which can be more readily updated as new or updated guidance is published.

*Earthworks Performance Standards (EW-S1)*

25. With regard to the proposed changes to the general earthworks performance standards for the Rural 1 Zone (EW-S1), a number of submitters oppose the reduction of cut and fill heights. The Rotorua

Planning Consultants Group (39.8) offer the opinion that they are overly restrictive and fail to enable typical rural and farming activities, as anticipated in the Rural 1 Zone. They cite an absence of evidence linking rural earthworks to increased land instability and would prefer a zone-specific approach based on slope and boundary proximity rather than blanket restrictions. They are also of the opinion that the format of the rules, which includes exceptions to the performance standards, leads to inefficiencies and confusion. The Group considers that a more comprehensive review of earthworks provisions is required and seeks that, if this is beyond the scope of the plan change, the changes are withdrawn until a full District Plan update occurs. Fonterra supports this submission and agrees that they are too restrictive for the Rural 1 Zone (43.7)

26. Fonterra (43.3) also opposes the proposed reduction of the permitted earthworks volume in Industrial Zones from 1,000 m<sup>3</sup> to 100 m<sup>3</sup> (EW-S1), specifically with regard to its site at Reporoa (Industrial 2 Zone). Fonterra considers this site to be similar to the Rural 1 Zone in character and therefore should be afforded 1,000 m<sup>3</sup> also. Fonterra reasons that this would trigger unnecessary resource consents for minor works, creating added costs and delays. They note that the Industrial 2 Zone is largely flat and classified as very low landslide risk, and that existing District Plan rules for earthworks near waterbodies and regional rules to manage erosion already apply.
27. Having considered the submissions, I agree that the performance standards for the Rural 1 Zone could remain at the current thresholds subject to including a clause that limits earthworks to within a safe distance from property boundaries. In geotechnical engineering, a common rule of thumb to avoid instability is to use a distance equal to three times the height of the cut or fill. Therefore, to retain the thresholds in the current District Plan, an additional performance standard could be included to require that at a minimum, earthworks should be located a

horizontal distance equal to three times the height of the cut or fill from any property boundary and not exceed the volumes and cut/fill heights in standard EW-S1(a). The primary goal of limiting earthworks is to protect people, property and the environment from the effects of land instability. EW-S1(3)(d) requires a setback of 25 m from water courses. I support adding an additional rule to limit the location of earthworks with respect to property boundaries in the Rural 1 Zone (39.8).

28. I agree that the Industrial 2 Zone is similar in character to the Rural 1 Zone in terms of the density of development, proximity to neighbours and surrounding landform. All Industrial 2 Zones are surrounded by the Rural 1 Zone. In my opinion, it would be appropriate to use the same performance standards for both.
29. All other zones are unlikely to trigger the volumes or cut/fill heights proposed unless part of a building platform or subdivision therefore it is my opinion that reducing the thresholds for the remaining zones as proposed is appropriate.

*Earthworks Performance Standards Exemptions (EW-S1(3)(a)(i))*

30. With regard to the proposed amendments to the exceptions to EW-S1(3)(a)(i), the Rotorua Planning Consultants Group opposes the amendments and claims that linking exemptions to the building consent process under the Building Act 2004 introduces uncertainty and reliance on external legislation. They consider exemptions should operate independently of building consent requirements. As noted above, they seek a withdrawal of the proposed changes until a full District Plan update occurs (39.9). Conversely, Fonterra supports the amendment (43.4).
31. The reasoning behind exemption EW-S1(3)(a)(i) is that, in these circumstances, the building consent process provides Council with sufficient discretion to assess the effects and ensure that controls can be put in place to identify and limit potential impacts on people, property and the environment. For this reason, I support the proposed change.

Based on my experience of working within the Council, this has been an effective way of managing earthworks and removes the requirement for additional consents.

## **CONCLUSION**

32. In my opinion, subject to the recommendations in my evidence, PC 8 will strengthen Council's ability to manage risks from ground instability (soft soils and landslides) hazards by placing limits on the amount and location of earthworks and providing a mechanism for making up to date hazard/susceptibility information available.
33. Based on my experience, the policy, rules and exemptions represent the current practice within the Council and provide an efficient and effective process for identifying and managing ground instability hazards.
34. The RITS v2 earthworks and geotechnical chapter, which was recently finalised, will provide practitioners with guidance on acceptable methods for assessing hazards and it is recommended that this is communicated to all relevant parties.

**John Joseph Brzeski**  
**13 March 2026**

**Appendix 1 - Identifying and Designing for Geothermal Hazards: Guidelines for Buildings and Associated Site Works in Rotorua District (2024, last updated November 2025)**