

IN THE MATTER of the Resource Management
Act 1991

AND

IN THE MATTER of the hearing (Stage 1) by the
Waikato District Council on the
Proposed Waikato District Plan

STATEMENT OF EVIDENCE BY LUCY SMITH

Terra Firma Resources Limited

6 November 2019

1.0 Introduction

1.1 My full name is Lucy Catherine Smith and I am a Director of Terra Firma Mining Ltd, a business I own and manage with my husband Lincoln. I have a Bachelor of Technology in Biotechnology and Bioprocess Engineering from Massey University and a Post Graduate Diploma in Resources and Environmental Planning from the University of Waikato. I have had more than 15 years' experience as an Environmental Planner.

1.2 I represent Terra Firma Resources Ltd (TFR), a business owned by my husband's family, and for whom I provide planning advice and services. TFR owns land around Lake Puketirini in Huntly, which is proposed to be zoned Rural under the Proposed Waikato District (PDP). TFR (Submitter 732) lodged submissions, the main focus of which is seeking that this land is rezoned instead to a residential zoning.

2.0 Policy 4.1.13

2.1 TFR's submission point 732.9 opposes in part Policy 4.1.13, which relates to the development of Huntly:

4.1.13 Policy – Huntly

(a) Huntly is developed to ensure;

(i) Infill and redevelopment of existing sites occurs;

(ii) Reverse sensitivity effects from the strategic transport infrastructure networks are avoided or minimised;

(iii) Development is avoided on areas with hazard, geotechnical and ecological constraints.

2.2 TFR is concerned that the wording prescribes that the existence of any constraints (no matter how minor) is a barrier to development. Policy 4.1.13 (iii) could be interpreted to preclude development on all land in Huntly given that most areas will be subject to geotechnical constraints to some degree (and notwithstanding that the geotechnical assessment process identifies constraints that allow building to occur).

- 2.3 TFR also has concerns about the use of the term ‘hazard’ in Policy 4.1.13, which implies that a hazard is a specific type of constraint rather than a generic term. I am unaware of the meaning of the term ‘hazard constraint’.
- 2.4 TFR considers that Policy 4.1.13, as drafted, confuses the presence of a hazard with risk and does not align with standard risk management concepts and terminology.
- 2.5 TFR seeks that Policy 4.1.13 be amended as follows:

Policy 4.1.13 Huntly

(a) Huntly is developed to ensure:

...

(iii) Development is avoided on areas where the geotechnical risk, ecological risk and the risk from any other hazards cannot be appropriately managed or mitigated. ~~with hazard, geotechnical and ecological constraints.~~

- 2.6 The s42A report recommends accepting TFR’s submission. However the recommended amendments are not based on TFR’s proposed changes, but those proposed by Shand Properties Ltd (Submitter 778). The recommended wording (including a new subsection (iii)) is as follows:

4.1.13 Policy – Huntly

(a) Huntly is developed to ensure;

...

(iii) Development of areas where there are hazard and geotechnical constraints is managed to ensure the associated risks are reduced to levels acceptable to the proposed use;

(iv) Development is avoided on areas with hazard and geotechnical constraints that are unable to be remedied or sufficiently mitigated to achieve a level of risk acceptable to the proposed use;

...

2.7 TFR considers the recommend changes are an improvement on the original policy as they at least refer to risk. However, the amended wording is still confusing and does not reflect established risk management concepts.

3.0 Risk Management 101

3.1 A useful starting point for better understanding risk management processes is AS/NZS ISO 31000:2009 Risk Management – Principles and guidelines. An overview of the relationships between risk management principles, framework and process set out in this Standard is provided in Attachment 1, for completeness. An excerpt of this diagram showing the risk management process is provided in Figure 1 below:

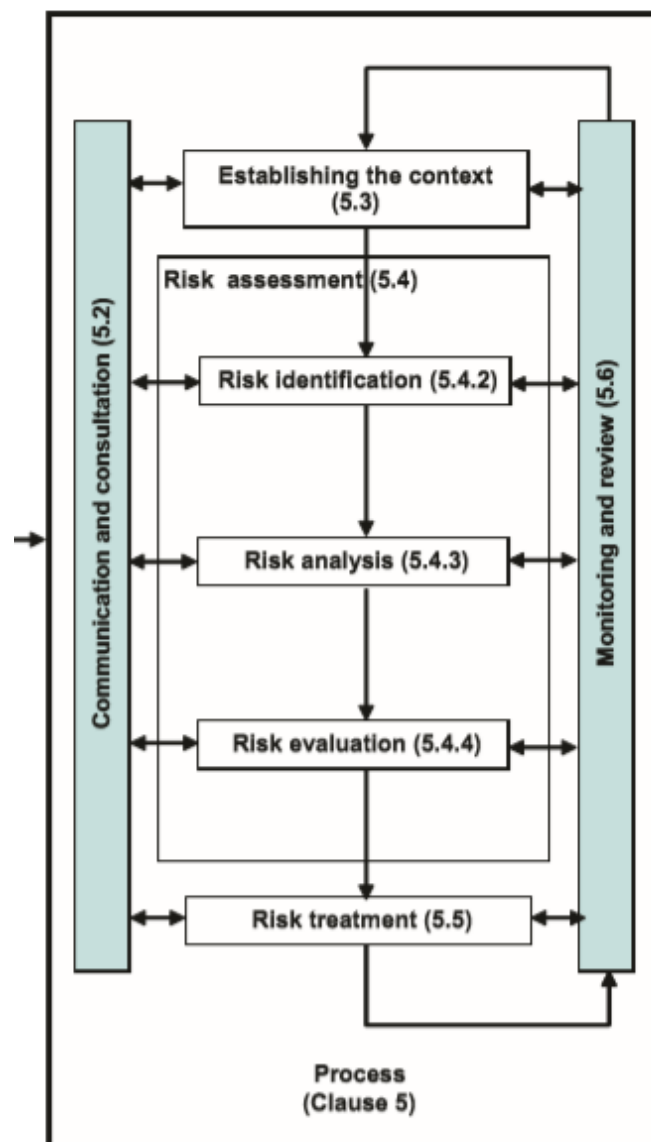


Figure 1: Risk management process (excerpt from AS/NZS ISO 31000:2009)

3.2 In summary, the process is cyclical but the main steps are:

1. Establish the context
2. Risk identification
3. Risk analysis
4. Risk evaluation
5. Risk treatment.

Step 1 – Establish the context

3.3 The context needs to be articulated and could be a combination of a particular location and activity (e.g. the location of a greenfields residential development).

Step 2 – Risk identification

3.4 Risks can exist in different contexts e.g. health and safety, financial, reputational, physical, environmental. Risk can result from the hazards that exist in a particular context e.g. geotechnical, electrical, mechanical. The existence of a hazard could potentially result in various outcomes or events with different levels of risk. For example, a geotechnical hazard on a greenfields site may be unconsolidated fill, the potential outcomes of which include subsidence and slumping.

Step 3 – Risk analysis

3.5 Risk is relative, and a risk analysis is the next step to determine the risk profiles of potential outcomes or events. This is done by analysing the probability of an event occurring (e.g. unlikely, highly likely) and the consequence of that event (e.g. insignificant, catastrophic).

Step 4 – Risk evaluation

3.6 A risk matrix is commonly used to evaluate the results of a risk analysis (Figure 2) and can show the risk profile of an event or outcome to be very low, low, moderate, high or critical. The particular circumstances will determine the acceptable level of risk for a specific event.

CONSIDER THE LIKELIHOOD OF A HAZARDOUS EVENT OCCURRING

	Very unlikely to happen	Unlikely to happen	Possibly could happen	Likely to happen	Very likely to happen	
CONSIDER THE SEVERITY OF INJURY/ILLNESS	Catastrophic (e.g. fatal)	Moderate	Moderate	High	Critical	Critical
	Major (e.g. Permanent Disability)	Low	Moderate	Moderate	High	Critical
	Moderate (e.g. Hospitalisation/Short or Long Term Disability)	Low	Moderate	Moderate	Moderate	High
	Minor (e.g. First Aid)	Very Low	Low	Moderate	Moderate	Moderate
	Superficial (e.g. No Treatment Required)	Very Low	Very Low	Low	Low	Moderate

Figure 2: Risk matrix

(excerpt from <https://www.sitesafe.org.nz/globalassets/guides-and-resources/risk-guide-web-final.pdf>)

3.7 Step 5 – Risk treatment

The level of risk can be lowered through the use of controls, the most effective of which is to eliminate the hazard entirely. The hierarchy of controls (in a health and safety context) is shown in Figure 3 below.

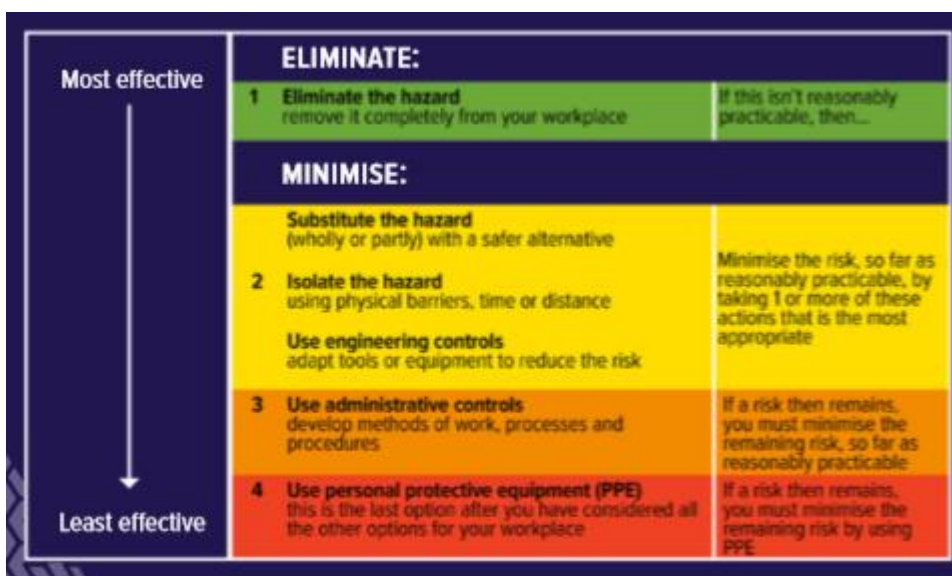


Figure 3: Hierarchy of controls

(excerpt from <https://www.sitesafe.org.nz/globalassets/guides-and-resources/risk-guide-web-final.pdf>)

- 3.8 For the example of unconsolidated fill and the potential events of subsidence and slumping, the risk of these events could be reduced to an acceptable level through controls such as a building setback from fill location, foundation design and/or construction methods. In other words, these controls are constraints or limits on construction that can be imposed to reduce risk. Constraints aren't inherent in a particular context (unlike hazards), instead they are a tool to reduce the risk of an event within that context.
- 3.9 Council will be routinely applying the risk management process in many different aspects of the organisation such as budgeting for asset management expenses and prioritising work streams. Although the principles of risk management are not embodied in the Resource Management Act 1991, they are widely used and it would be helpful if District Plan policies aligned with the principles rather than introducing terms and concepts that could cause confusion.

4.0 Conclusion

- 4.1 In consideration the points above, TFR suggests rewording of Policy 4.1.13 (iii) that merges TFR and Shand amendments as follows:

4.1.13 Policy – Huntly

...

(iii) Development of areas where there are geotechnical and other hazards is managed to ensure the associated risks are reduced to levels acceptable to the proposed use;

(iii)(iv) Development is avoided on areas where the ~~with hazard~~, risk from geotechnical and other hazards cannot be appropriately managed or mitigated to levels acceptable to the proposed use. ~~and ecological constraints.~~

- 4.2 These amendments refer to 'hazards' and 'risk' and better align with risk management concepts and terminology. The use of the term 'constraint' is avoided, as this is a type of control that might result from a risk management process.

Attachment 1

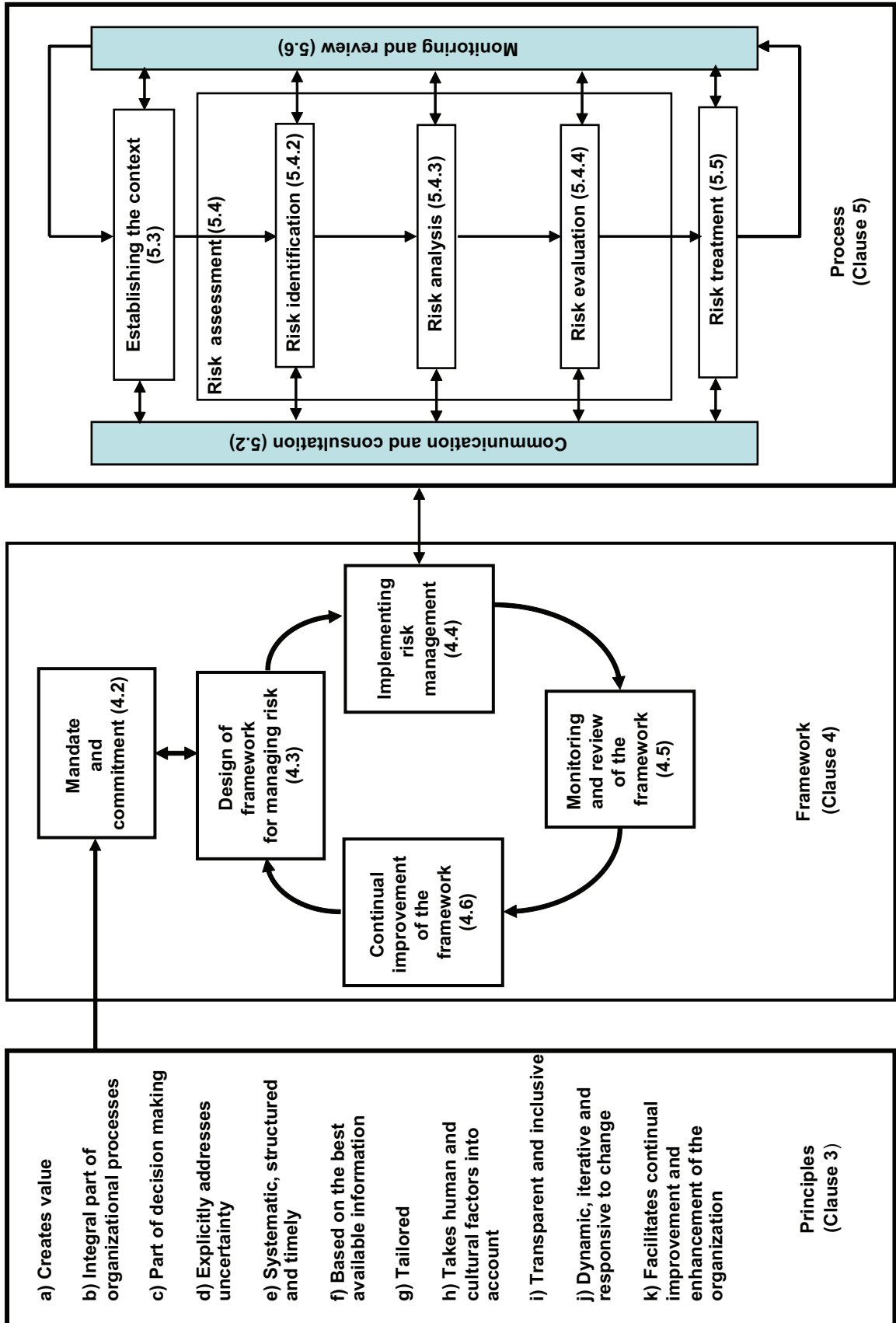


Figure 1 — Relationships between the risk management principles, framework and process