

Report No:	EP12-03-08
File No:	L223
Report Date:	16 March 2012
Decision Required	

REPORT SUMMARY

Report to: Environment & Planning Committee
Meeting Date: Thursday, 29 March 2012
Report Author: Neil Jackson, Policy Planner

Subject: **EARTHQUAKE FAULT LINES AND GEOTECHNICAL REPORTS**

EXECUTIVE SUMMARY

This report reviews the need for showing fault lines on the planning maps, and the rules relating to development in both the Fault Rupture Risk Area and the Slope Instability Risk Area.

RECOMMENDATION/S

The recommendations are to adopt for notification, proposed Change 38 to delete fault lines from the planning maps, amend the FRRA rules to better reflect consultant's advice, and amend both FRRA and SIRA rules regarding reports on geotechnical investigations.

DRAFT RESOLUTION

THAT the Environment & Planning Committee receives Report REP12-03-08 Earthquake Fault Lines and Geotechnical Reports, and instructs staff to notify the plan change contained in Appendix 1.

Report No:	REP12-03-08
File No:	L223
Report Date:	16 March 2012
Decision Required	

Report to: Environment & Planning Committee

Meeting Date: Thursday, 29 March 2012

Report Author: Neil Jackson, Policy Planner

Subject: **EARTHQUAKE FAULT LINES AND GEOTECHNICAL REPORTS**

1. Purpose

1.1 This report reviews:

- (i) the merits of showing fault lines on the planning maps;
- (ii) rules in the Fault Rupture Risk Area (FRRA) that relate to fault lines shown on the maps; and
- (iii) rules in the Slope Instability Risk Area (SIRA).

2. Background

- 2.1 The report stems from a request from property owners that fault lines not be shown on the planning maps. During the recent Plan Change 21 Fault Rupture Risk Area, there was no submission requesting the removal of fault lines. The present request has arisen after that process.
- 2.2 Fault lines were shown on the planning maps notified in 1996. Prior to Change 21, a geotechnical investigation was required for development within 100 metres of a fault line shown on the planning maps.
- 2.3 Through these and other investigations, the position of fault lines has been better defined in some locations than in others. Dr Mike Johnston has classified sections of the Alpine Fault and Waimea-Flaxmore Fault with three levels of accuracy: position surveyed, position approximate, and position inferred. In the Alpine Fault System at and east of St Arnaud, the top or toe of a fault scarp has been identified separately from the position of the fault line.
- 2.4 Where a fault has been accurately located, this has allowed a reduction in the width of the area for which a geotechnical investigation is required. This area is the Fault Rupture Risk Area (FRRA). Dr Johnston recommended a FRRA that varies in width from 200 metres to less than 35 metres. He recommended that the planning maps show the Fault Rupture Risk Area, but not the position of the fault lines.

- 2.5 Plan Change 21, showing both the FRRA and the fault lines, was circulated to affected landowners as a proposal for informal comment, before being notified as a formal plan change and subject to public submissions. The planning maps retained the fault lines as “best available information”, and to show why the width of the FRRA varied. Staff did not ask Dr Johnston for his reasons against showing the fault lines. His reports were available on the Council website during both the informal consultation and the public notification phases.
- 2.6 No submission sought deletion of the fault lines. Dr Johnston’s recommendation was noted at section 5.0 of the Hearing 61 staff assessment report. It also appeared on three of the photomaps included in his evaluation of the submissions, and at the end of his assessment of submission 2946. In the absence of a submission request, the staff assessment report made no recommendation about retaining or removing the fault lines.
- 2.7 A further matter has arisen from the administration of the current plan rules for both the FRRA and the SIRA. The issue is that reports tendered at the building stage are sometimes those supplied at the subdivision stage, which often pre-date the current rules and:
- have not been prepared by a suitably competent person in geology or geotechnical engineering with specialisation in earthquake risk assessment; or
 - do not include the most current information as obtainable from investigations done nearby in the intervening period and accessible through Council records.

3. Present Situation/Matters to be Considered

- 3.1 A submitter has now requested that the fault lines be removed from the planning maps. Staff have sought Dr Johnston’s reasons for not showing the faults, and in summary these are:
- What the various lines mean is not easily understood by the public;
 - The accuracy with which faults can be shown and interpreted is related to the scale of the maps;
 - Where a fault position is shown as inferred, its actual position may vary by 50 metres or more.
- 3.2 Rule 18.13.2.1 relating to subdivision refers only to the FRRA, not to fault lines shown on the planning maps. The rule requires an investigation to attempt to accurately locate the surface position of the fault plane.
- 3.3 Rule 18.13.3.1 relating to buildings requires a similar investigation. One condition has clauses that refer to the position of the Alpine Fault at St Arnaud being shown on the planning maps as inferred. The clauses require different building set-backs, of 50 metres and 30 metres, depending on whether the direction of the inferred fault position changes or is constant within the site.

- 3.4 Another clause in this rule refers to the top or toe of a fault scarp. This distinction between fault line and fault scarp helped to resolve the submission on Change 21 by The Lakes St Arnaud Ltd.
- 3.5 Further discussion with Dr Johnston about the fault lines and plan provisions has shown that there are inconsistencies between the rules and Dr Johnston's advice.
- 3.6 For the third matter relating to the quality of geotechnical reports it is appropriate to consider whether there should be an age limit on geotechnical reports submitted with development proposals in the FRRRA and SIRA, or a process for them to be reviewed by a person meeting the current competency criteria.

4. Financial/Budgetary Considerations

- 4.1 Removing the fault lines from the planning maps and amending the FRRRA and SIRA rules will incur the costs of a plan change.

5. Options

- 5.1 The fault lines could be removed entirely.
- 5.2 The fault lines could be removed generally, but retained on Area Map 94 for St Arnaud.
- 5.3 The fault lines could be retained on the planning maps.
- 5.4 The FRRRA rules need to be amended to better reflect Dr Johnston's advice. (The option of not amending them is not appropriate.)
- 5.5 For geotechnical reporting standards, the options are to seek best available information, or to accept existing reports regardless of whether there is more recent information available and whether or not the author meets the criteria of the current rules.

6. Pros and Cons of Options

- 6.1 Option 1 avoids people reading into the lines on the maps a level of accuracy about the location of fault lines which is not justified. This is particularly relevant where the fault line maps are viewed electronically, when they can be enlarged and printed at a scale that exceeds the accuracy at which the data has been entered.
- 6.2 Option 2 would leave a question about why fault lines were shown for St Arnaud, but not elsewhere. For that reason it is not recommended.

- 6.3 Option 3 gives best available information about the location of fault lines and justification for the varying width of the FRRR. Its disadvantage is that at the scale of the planning maps (1:5,000 is the largest scale of the printed maps), even the surveyed fault line position is not as accurately shown as the 1:500 scale mapping required under the FRRR rules. This is especially relevant for the lowest building set-back options of 10 and 5 metres under Rule 18.13.3.1.
- 6.4 The rules do not fully implement the advice received from Dr Johnston.
- 6.5 Best available information is likely to involve additional costs, either through an applicant providing up-dated information, or through Council obtaining a peer review of information provided (with those costs recovered from the applicant). The status quo means some siting options might be missed, or less-than-optimal options chosen.

7. Evaluation of Options

- 7.1 The administration of TRMP is not affected by whether or not fault lines are shown on the planning maps or not. The plan rules require a geotechnical investigation for subdivision or habitable buildings within the FRRR. The purpose of the investigation is to show the location of fault lines as accurately as practicable, at a larger scale than the planning maps are able to show.
- 7.2 The fault line information is held in Council's database independently of the TRMP planning maps. It is available to any person who inquires about it.
- 7.3 The rules need to better distinguish between:
- Where the geotechnical investigation is successful in identifying the surface position of an active fault;
 - Where the investigation cannot identify the location of the fault, but shows it to be within scarps or otherwise demonstrates its inferred position.
- 7.4 The proposed amendments to the plan rules are shown in the draft plan change attached as Appendix 1.
- 7.5 Reporting.
- 7.5.1 It is prudent to require best available information. That doesn't always require new geotechnical investigation. It would be sufficient to review any existing investigation reports for other properties in the vicinity, where those reports are more recent than any report for the property where the development is proposed.
- 7.5.2 The question whether a person meeting the current competency criteria would re-certify an existing report prepared by a less-qualified or less-experienced person is open. They might re-certify but with qualifications; or they might need to investigate further.

7.6 Duty to assess alternatives.

7.6.1 The recommended solutions to the issues are assessed as being the most appropriate, effective and efficient, with regard to their benefits, costs, and risks.

8. Significance

8.1 This is not a significant decision according to the Council's Significance Policy because it amends details of TRMP maps and rules without any change to the policies they implement.

9. Recommendation/s

9.1 The first recommendation is to delete fault lines from the planning maps and to amend Rule 16.13.3.1 to better reflect Dr Johnston's current advice. Consequential amendments to Rule 18.13.2.1 are needed to ensure consistency.

9.2 The second recommendation is to add a time limit and re-certification requirement where geotechnical reports from a previous development phase are used to support a current development proposal.

10. Timeline/Next Steps

10.1 A resolution to remove fault lines from the planning maps and to amend the rules would need to be implemented through a notified plan change. The amendments are largely technical in nature. The effect of the Change is such that it is considered unnecessary to consult, as there are no persons that can be easily identified as affected to a degree warranting a consultation process.

11. Draft Resolution

THAT the Environment & Planning Committee receives Report REP12-03-08 Earthquake Fault Lines and Geotechnical Reports, and adopts proposed Change 38 contained in Appendix 1.



Neil Jackson
Policy Planner

Appendices:

Appendix 1: Draft Plan Change 38

TASMAN DISTRICT COUNCIL
PROPOSED TASMAN RESOURCE MANAGEMENT PLAN**PROPOSED CHANGE NO. 38****Review of Fault Rupture Risk Area and Slope Instability Risk Area provisions****Notified 31 March 2012****EXPLANATORY STATEMENT**

Earthquake fault lines have been shown on the planning maps since TRMP was notified in 1996. Geological investigation was required for development within 100 metres either side of the fault lines.

Further information since 1996 has better defined the position of the fault lines in some locations, allowing a reduction in the width of the area in which geological investigations are needed.

In 2010, Change 21 added the Fault Rupture Risk Area (FRRA) to the planning maps and amended the rules relating to subdivision and habitable buildings in the risk area. The fault lines were retained on the maps as representing best available information on their location, although Council's geological consultant had recommended showing only the FRRA and not the fault lines.

Council has subsequently received a request that the fault lines be removed from the planning maps, in accordance with the geological consultant's advice. This plan change results from that request.

Removal of the fault lines from the planning maps does not affect the operation of the relevant TRMP rules, as these relate to the FRRA, not the fault lines. The fault line information remains in Council's database and is available to anyone who requests it.

Checking the relevance of the fault lines to plan rules has shown inconsistencies in the rules. The plan change corrects those inconsistencies.

The change adds limitations to the use of existing geotechnical investigation reports for new developments.

Council has assessed alternatives and is satisfied that amendments in the proposed Change 38 are the most appropriate, effective and efficient methods of addressing the issues, with regard to their benefits, costs, and risks.

SCHEDULE OF AMENDMENTS

The Tasman Resource Management Plan is amended in accordance with the following schedule:

1. Chapter 18.12

Add a new condition to Rule 18.12.2.1:

“(d) The report required by condition (b) is prepared no more than two years before the application is received by Council.”

Add at the end of Rule 18.12.2.1:

“**Note:** Any report submitted to meet the requirements of this rule may be older than two years from the date of receipt of the application, provided that the report is re-certified as constituting best current information and advice by a person who meets the criteria in condition (b).”

Add a new condition to Rule 18.12.3.1:

“(aa) The report required by condition (a) is prepared no more than two years before the application is received by Council.”

Add at the end of Rule 18.12.3.1:

“**Note:** Any report submitted to meet the requirements of this rule may be older than two years from the date of receipt of the application, provided that the report is re-certified as constituting best current information and advice by a person who meets the criteria in condition (a).”

Add a new condition to Rule 18.12.3.2:

“(b) The report required by condition (a) is prepared no more than two years before the application is received by Council.”

Add at the end of Rule 18.12.3.2:

“**Note:** Any report submitted to meet the requirements of this rule may be older than two years from the date of receipt of the application, provided that the report is re-certified as constituting best current information and advice by a person who meets the criteria in condition (a).”

2. Chapter 18.13

Amend Rule 18.13.2.1 as follows:

“(b) Subject to condition (d), a report is prepared by an appropriately competent person in geology or geotechnical engineering with specialisation in earthquake risk assessment, and submitted to Council, that

- (i) records the survey and mapping of the land subject to the Fault Rupture Risk Area at a scale of 1:500 to identify or show as accurately as practicable, the location of the surface position of the plane of any active fault; and
- (ii) shows that any building location area that extends into the Fault Rupture Risk Area can provide for the setting back of the intended buildings in accordance with conditions (b) or (ba) ~~(c)~~ of rule 18.13.3.1; and
- (iii) unchanged

(c) Where the fault is the Waimea-Flaxmore Fault and the report required by condition (b) certifies that ~~ne~~ the location of the surface position of the plane of any active fault cannot be identified, ~~nor its inferred position indicated with confidence,~~ then there is no ~~further~~ restriction on the location of the building or alteration in relation to the fault.”

“(ca) The report required by condition (b) is prepared no more than two years before the application is received by Council.

(d) – (f) unchanged”

Add at the end of Rule 18.13.2.1:

“**Note:** Any report submitted to meet the requirements of this rule may be older than two years from the date of receipt of the application, provided that the report is re-certified as constituting best current information and advice by a person who meets the criteria in condition (b).”

Amend Rule 18.13.3.1 as follows:

“The construction or alteration of a building is a permitted activity that may be undertaken without a resource consent, if it complies with the following conditions:

(a) Except as provided by condition (e), where the construction of any habitable building or external alteration to a habitable building is within the Fault Rupture Risk Area shown on the planning maps, a report is prepared by an appropriately competent person in geology or geotechnical engineering with specialisation in earthquake risk assessment, and submitted to Council. ~~, that records~~ The report must record the survey and mapping of the site at a scale of 1:500 to identify, or show ~~indicate~~ as accurately as practicable, the location of the surface position of the plane of any active fault.

(b) Where the report required by condition (a) identifies ~~or indicates~~ the location of the surface position of the plane of any active fault, then the building or alteration is set back at least:

~~(i) 50 metres from that surface position where the active fault is that part of the Alpine Fault that is east of St Arnaud and the surface position is indicated on the Planning Maps is inferred, but the trend of the inferred position changes within or adjacent to the site; or~~

~~(ii) 30 metres from that surface position where the active fault is that part of the Alpine Fault that is east of St Arnaud and the surface position is indicated on the Planning Maps is inferred, but the trend of the inferred position is of the same within or adjacent to the site; or~~

~~(iii) 20 metres from the top or toe scarp of the fault where the active fault is the Alpine Fault that is within or east of St Arnaud and there is an identified fault scarp feature on the Planning Maps; or~~

~~(iv) 40 20 metres from that surface position where the active fault is the Alpine Fault that is within or east of St Arnaud, and or 10 metres if the report contains the results of specific site investigations that support this setback; or~~

~~(iv) 10 metres from that surface position where the active fault is part of the Waimea-Flaxmore Fault system that is between from north-east of St Arnaud to and the District boundary east of Richmond; or any other active fault except for the Alpine Fault east of St Arnaud the margin on Lake Rotoiti as provided for in (i) to (iv) above; or~~

~~(viii) 5 metres from that surface position where the active fault is part of the Waimea-Flaxmore Fault system that is north of the Wairoa River; and the report contains the results of specific site investigations that support this lesser setback; or~~

(ba) Where the fault is the Alpine Fault that is within or east of St Arnaud and the report required by condition (a) does not identify the surface position of the plane of any active fault, but:

(i) assesses the fault as being within a fault scarp, then the building or alteration is set back at least 20 metres from the top or toe of the scarp; or

(ii) shows the inferred surface position of the plane of the fault, then the building or alteration is set back from that inferred position a distance recommended in the report that is at least the distance shown by a line drawn between points that are:

- 20 metres from the identified surface position of the plane of movement of the fault (as in (b) (i)); or 20 metres from the top or toe of the scarp (as in (ba) (i)), and
- 30 metres from the mid-point of the inferred section of the fault.

If the fault changes direction within the inferred section then the 30 metres is measured from that inferred point of change in direction; or

(c) Where the fault is the Waimea-Flaxmore Fault and the report required by condition (a) certifies that the location of the surface position of the plane of the any part of any active fault cannot be identified or indicated with confidence, then there is no further restriction on the location of the building or alteration in relation to the fault.

(ca) The report required by condition (a) is prepared no more than two years before the building application is received by Council.”

(d) Any external alteration does not increase the area of building coverage that may extend within the relevant setback distance as given in condition (b) or under condition (ba) by more than 20 per cent.

(e) unchanged

Note 1: The report required by condition (a) should state the limits of the methods used in the investigation. Except where the fault is well defined by a scarp on the ground surface or by rupture along the fault, the methods are likely to include test pitting or trenching, or other subsurface techniques.

Note 2: The provision of a report on fault rupture hazard risk as required by rule 18.13.2.1 is a means of compliance with condition (a) if the report addresses the matter of the identification or indication of the of the surface position of the lane of any active fault, in relation to any proposed building location.

Note 3: Any report submitted to meet the requirements of this rule may be older than two years from the date of receipt of the building application, provided that the report is re-certified as constituting best current information and advice by a person who meets the criteria in condition (a)."

Add a new condition to Rule 18.13.3.2:

"(b) The report required by condition (a) is prepared no more than two years before the application is received by Council."

Add at the end of Rule 18.13.3.2:

"**Note:** Any report submitted to meet the requirements of this rule may be older than two years from the date of receipt of the application, provided that the report is re-certified as constituting best current information and advice by a person who meets the criteria in condition (a)."

Amend the second paragraph of the Reasons 18.13.20 as follows:

~~"The planning maps show the Fault Rupture Risk Area. containing the indicative position of active faults at a scale that is too small to assist in the location of a building on a particular site. Generally the Council does not have fault line data at sufficient accuracy to assist in the location of a building on a particular site. larger scale maps available. Therefore the rules require both subdivision and habitable buildings within the Fault Rupture Risk Area to have the surface location of the active fault surveyed and mapped more accurately in order to position any allotment or habitable building in relation to the relevant fault required setback."~~

3. Planning Maps and Legend

Delete fault lines and fault scarps within the Fault Rupture Risk Area.