WESTLAND DISTRICT PLAN CHANGE 7:

Managing Fault Rupture Risk in Westland

Amendments to the Plan

The following section outlines the proposed alterations or additions to the Westland District Plan.

- Add additional wording into Policy 4.14 Explanation, page 99

> The Alpine Fault is located within Westland and there is significant risk posed by an Alpine Fault earthquake which has a probability of occurrence, calculated at 20% over the next 30 years (Langridge, RM; Beban, JG 2011).

- Amend Rule 5.6.2.2 B, (Page 153) Controlled Activities in the Rural Zone to include reference to the General Fault Rupture Avoidance Zone and the Franz Josef/ Waiau Fault Rupture Avoidance Zone. New wording is underlined.

> "The establishment of new buildings for the purposes of any residential activities except in
> - the Waiho River General Flood Hazard Area as shown on Planning Map 14A ,
> - the Franz Josef/Waiau Fault Rupture Avoidance Zone; or
> - within the General Fault Rupture Avoidance Zone.
>
> Applications may be considered without the need to obtain the written approval of affected persons or publicly notify the application. The matters over which control is reserved are:

- Add new section 5.8 General Fault Rupture Avoidance Zone and 5.9 Franz Josef / Waiau Fault Rupture Avoidance Zone (detailed on following pages).

5.8 General Fault Rupture Avoidance Zone

5.8.1 Description

The General Fault Rupture Avoidance Zone is an area of between 20and 200 metres wide located on either side of the Alpine Fault as it runs through the length of Westland District. This zone is the area that is predicted to be seriously affected by fault rupture during an earthquake on the Alpine Fault.

The zone has been created and mapped by the Institute of Geological and Nuclear Sciences(GNS) utilising data from a number of sources. The width of this zone depends firstly on the type of fault at any given point and therefore its performance during an earthquake event, and secondly, variations in the accuracy of data available at any particular location.

GNS predict the probability of an Alpine Fault earthquake event, with fault rupture to the surface, occurring is 20% within the next 30 years. Along the fault rupture it is estimated that there will be approximately 8-9 metres of horizontal displacement (to the north) on the west (Australian plate) side, and 1-2 metres vertical uplift on the east (Pacific Plate) side. As land deformation will be greater on the vertical lift or "hanging wall" side of the fault rupture, the Fault Rupture Avoidance Zone is wider on the east (Pacific Plate) side.

In order to manage the risk to human life and reduce effects on the long term recovery of the Westland District from an Alpine Fault earthquake event, it is necessary to restrict the types of activities that can occur within areas susceptible to fault rupture. However, in recognition of the fact that in some areas the location of the fault is not well defined, landowners are given the opportunity to obtain further technical advice regarding the fault location on specific sites. If the further report identifies a narrower area of predicted fault rupture, then this may be approved through consent. Subdivision, commercial activities, and dwellings are discouraged in the General Fault Rupture Zone due to the increased hazard risk and the lack of available mitigation measures.

5.8.2 Zones

5.8.2.1 General Fault Rupture Avoidance Zone

A. Permitted Activities

Any agricultural or forestry activity, subject to:

(1) Compliance with the standards for permitted activities in the Rural Policy Unit rules 5.6.2.2 and set out in Table 5.7;

(2) Compliance with the general rules in Part 8;

(3) Any buildings that are not used for residential purposes, subject to:

(a) The provision of a report to Council from a suitably qualified person in geology or geotechnical engineering with specialisation in earthquake risk assessment that :

i. Records the survey and mapping of the site to identify and indicate as accurately as possible the location of the surface position of the plane of any active fault.

ii. Establishes the area that is likely to be subject to fault rupture and includes any buffers for uncertainty and establishes that the proposed building is located entirely outside of this area.

(b) Compliance with all other rules in Part 5.6.2.2A, 5.7 and Part 8 of the Plan.

B. Controlled Activities

- The establishment of new buildings for the purposes of any residential activities that are accompanied by:

a) A report from a suitably qualified person in geology or geotechnical engineering with specialisation in earthquake risk assessment that :

i. records the survey and mapping of the site to identify and indicate as accurately as possible the location of the surface position of the plane of any active fault.

ii. Establishes the area that is likely to be subject to fault rupture and includes any buffers for uncertainty and establishes that the proposed building is located entirely outside of this area.

Applications may be considered without the need to obtain the written approval of affected persons or publicly notify the application. The matters over which control is reserved are:

- financial contributions relating to the provision of potable water and roading
- location of access points
- method of effluent disposal
- distance from existing activities which may have nuisance effects
- visual and aesthetic values

C. Non complying activity

Any new building, building extension or alteration of an activity to increase the scale of effects of an activity within a building located within the Fault Rupture Avoidance zone.

Explanation

Through restricting the use of land subject to fault rupture, Council is managing natural hazard risk and providing for the health and safety of the residents and visitors to Westland.

Farming activities may occur without consent, however any building, including farm sheds require a consent as these buildings can be significant investments in the infrastructure of a farm and will have significant economic effects if destroyed by fault rupture. This will adversely affect Westland's recovery from an Alpine Fault Earthquake.

Council acknowledges that the detail and accuracy of the underlying information that formed the Fault Avoidance Zone was varied, so in situations where the fault is not well defined, a further report can be presented that provides additional detail into the location of the fault on the specific site, and the risk of fault rupture. This will allow the margins of error to be reduced and may allow the development to proceed without consent.

Development of new buildings within the General Fault Rupture Avoidance Zone that are not established through further study to be outside of fault rupture risk are non-complying and are unlikely to be approved.

5.9 Franz Josef / Waiau Fault Rupture Avoidance Zone

5.9.1 Description

The Alpine Fault passes through the township of Franz Josef/Waiau and subsequently the town is subject to significant risk from fault rupture. A detailed study has been undertaken to map the location of the Alpine Fault through Franz Josef/Waiau and the surrounding area utilising LiDAR imagery and RTK GPS mapping. Within this area, the fault is considered "well defined" in this location and it is unlikely that further study would reduce the area of land identified as subject to fault rupture risk any further than that set out in the 2011 GNS report. Developments and increases or alterations to activities within this area are heavily restricted in order to ensure the health and safety of residents and visitors.

5.9.2 Zones

5.9.2.1 Franz Josef / Waiau Fault Rupture Avoidance Zone

A. Permitted Activities

Any commercial or residential activity, subject to:

(1) No buildings other than temporary buildings are permitted in association with these activities;

(2) Compliance with the standards for permitted activities in the Tourist Policy Unit or Franz Alpine Resort;

(3) Compliance with the general rules in Part 8;

B Non complying activities

The construction of any new building, or extension of any existing building, or change or increase in an activity within a building on site within the Franz Josef Waiau Fault Rupture Avoidance Zone

5.9.3 Explanation

Existing use rights under Section 10 of the Resource Management Act are not impinged by the above rules.

The location of the fault line within Franz Josef/ Waiau is well defined and therefore there is no opportunity for additional information to be provided in order to reduce the margin of error of the predicted rupture risk area.

Ancillary commercial and residential activities that do not require buildings are permitted. This allows activities such as carparking and gardens to occur without consent however any structures will be unlikely to be approved due to the risk to human safety.

- Make the following alterations and additions to the subdivision section (Part 7.3 of the Plan, from page 182). New wording is underlined.

7.3.3 Discretionary Activities

Any subdivision which complies with the rules for discretionary activities in Table 7.1. All subdivision in the Waiho River General Flood Hazard Area as defined on Planning Map 14A. Any subdivision that is partially located within the Franz Josef/Waiau Fault Rupture Avoidance Zone or the General Fault Rupture Avoidance Zone.

7.3.4 Non-complying Activities

Any subdivision which is not a permitted, controlled or discretionary activity. All subdivision in the Waiho River Severe Flood Hazard Zone as defined on Planning Map 14A. Any Subdivision of land that is entirely located within either the Franz Josef/Waiau Fault Rupture Avoidance Zone or the General Fault Rupture Avoidance Zone.

7.6 Assessment of Discretionary Subdivision

- When a proposed subdivision includes land partially within the Franz Josef/Waiau Fault Rupture Avoidance Zone, or the General Fault Rupture Avoidance Zone, whether a report has been provided from a suitably qualified person in geology or geotechnical engineering with experience in earthquake assessment to demonstrate that any buildings are located outside of the relevant fault rupture avoidance zone, whether access can be achieved and if ground topography will cause additional adverse effects during fault rupture. Whether any mechanisms have been volunteered to prevent development within the Fault Rupture Avoidance Zone.

- Insert the following definitions into Part 9: Definitions section of the Plan.

Franz Josef/Waiau Fault Rupture Avoidance Zone: means the area encompassing the active fault system within Franz Josef/ Waiau and suggested to be subject to elevated risk of a fault rupture hazard. This section of the Alpine Fault has been accurately

determined utilising LIDAR and GPS mapping. Shown on the planning maps as Franz Josef/ Waiau Fault Rupture Avoidance Zone

General Fault Rupture Avoidance Zone: means the area encompassing active fault systems in the District and suggested to be subject to elevated risk of a fault rupture hazard. Shown on the planning maps as General Fault Rupture Avoidance Zone

- Replace the existing planning maps with new maps (shown on following pages) into Part 10 Appendices indicating the General Fault Rupture Avoidance Zone within the Westland District, and the Franz Josef/ Waiau Fault Rupture Avoidance Zone within Franz Josef/Waiau and the surrounding area.