

An open letter to the Honourable Gerry Brownlee,
Minister for the Canterbury Earthquake Recovery.

Christchurch, 22 November 2013.

Dear Minister

This is a request for information under the Official Information Act.
Please also consider this letter as submission to the Land Use Recovery Plan.

Firstly I would like to thank you for co-hosting the Canterbury Earthquake Forum held on 4 November 2013. I firmly believe that events like these should to be held on a regular basis. In addition, residents need to see that issues have been clearly identified, and action plans are in place. They also should receive regular feedback on how such issues are being resolved.

While many different forums and meetings have been held over the last three years, up to now there has been a lamentable lack of engagement with residents.

As discussed during and after the Forum, I am especially concerned about the hazard mapping of the earthquake fault that that caused the February 2011 earthquake, the most destructive and deadly in the South Island's history. It has now been named the Port Hills Fault. Ecan has published the following finding:

The movement on the Port Hills Fault during the February 2011 earthquake stopped somewhere around 1-2 km below the ground surface - it didn't break the ground surface. Because of this we are not commissioning a report like the Greendale Fault report to advise on managing fault rupture hazard at the ground surface.

When one side of a fault rises and the other subsides, the fault breaks the crust of the earth. As Christchurch is on sandy liquefiable soil, this fault is unlikely to ever reach the surface.

GNS has established fault avoidance zones, as for example on the Kapiti Coast. Either avoidance zones or stricter building regulations are required on or in proximity to a fault line. So I fail to understand why has the earthquake fault in the South Island, one that wreaked such devastation, not been designated a hazard.

The Ministry for the Environment has published the following guide:

*"Planning rules for development of land on or close to active faults:
A guideline to assist resource management planners in New Zealand."*

"Fault Avoidance Zones are defined along all seismic faults based on the rupture complexity of the particular fault and the precision to which its location can be constrained. The Fault Avoidance Zones so far identified range in width from about 40 m (well-defined) to greater than 300 m (uncertain - poorly constrained)."

Source: <http://www.mfe.govt.nz/publications/rma/planning-development-active-faults-dec04/html/page10.html>

Elevation Related Elevation Change Map - Post June 2011 to Post Dec 2011
(My estimation of the location of the faultline based on elevation changes)



Source: <https://canterburygeotechnicaldatabase.projectorbit.com/Maps/EQC/LVS/Figure A23.pdf>

As Minister, you are now responsible for the Land Use Recovery Plan, which carries specific obligations in regard to hazard mapping, (CANTERBURY REGIONAL POLICY STATEMENT 2013) so may I point out the obligations this involves, in particular in relation to the coastal marine area for the purpose of avoiding or mitigating natural hazards.

Source: <http://ecan.govt.nz/publications/Plans/canterbury-regional-policy-statement.pdf>

The earthquake events in Christchurch produced landslide effects. On the Port Hills, the landslides toppled some houses over the cliffs. Landslides along waterways resulted in some properties sliding into the coastal marine area. Existing use rights do not travel with houses in the event of a landslide. Existing use rights are based on coordinates, and if the coordinates are not correct, they do not exist. (My understanding backed up by many planners around the country)

At the forum, I drew your attention to the 140 properties in South Brighton. These are properties that have suffered landslide and subsidence in excess of 250 mm. All these properties have moved downwards and towards the river. There are examples of subsidence over 550mm and land displacement of several meters.

Source: [Earthquake Forum discussions from minute 41](#)

The properties are situated on the north side of the Port Hills Fault. Many of these dwellings are now below the highest tide in the area. This is not evident on maps or statistics in the Stage 3 land report, as the statistics excluded 10% of the worst affected properties. The LiDAR maps excluded land subsidence caused by over 100 earthquakes of magnitude 4 and over. Such omissions have the potential to attract similar criticism to the recent EQC satisfaction survey.

An email from Tonkin and Taylor (Mike Jacka), dated 16 April 2013, confirms the following:

“Looking at the LiDAR change in elevation map, we can see that in the part of South New Brighton between Falcon St and Seafield Place the ground subsidence is generally between 100mm and 400mm, with a few properties showing up to 500mm of subsidence. So in this part of the suburb, the ground subsidence is clearly much greater than most of the rest of South New Brighton. Of the 10% of properties in South New Brighton with more than 250mm subsidence (about 140 properties), it looks like most of them are located within the areas around the west end of Bridge St and the south end of Estuary Rd.”

The so-called "jack and pack" approach has been used for all of these 140 properties that have been repaired. This has been done based on existing use rights that no longer apply.

At a meeting with MBIE and Council on 6 November 2013, I asked what tests had been carried out by BRANZ (or any other organisation) to evaluate the suitability of jack and pack solutions in a seismic area.

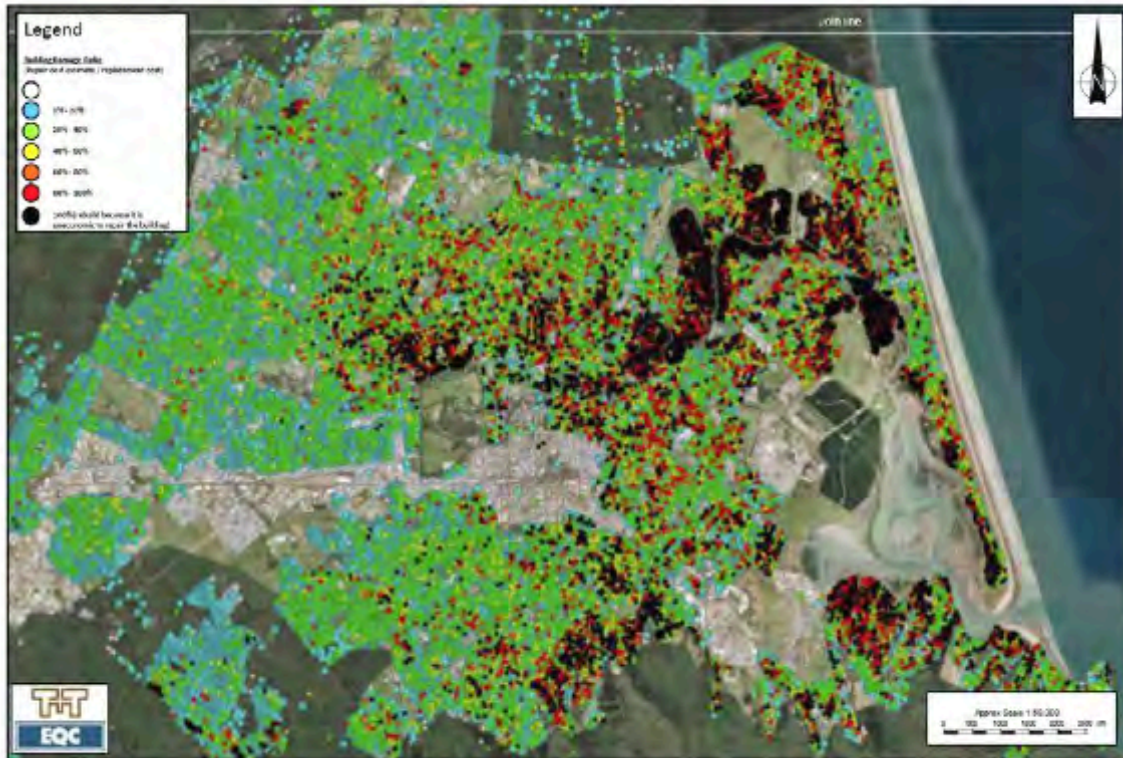
It was confirmed that no tests had been carried out.

While jack and pack has been an acceptable approach in the past in New Zealand on stable land, using this approach without any inspections on unstable land that is likely to suffer significant shaking in the decades to come is certain to have dire consequences for Christchurch.

The South Brighton area underwent extensive dewatering performed by SCIRT over a period of 2.5 years before EQC conducted drilling in the area. Dewatering an area close to waterways provides land with temporary strength. However, water will always find its way back through sandy soil. The groundwater is tidal in the area and very close to the surface. Stop banks do not protect against rising groundwater.

This, plus the fact that 10% of the worst affected properties were excluded in the Stage 3 Land report, explains why groundwater is significantly lower than in the Stage 2 Land report for the area. The misleading data imply that the land has more strength than the true facts reveal.
(EQC Stage 3 Land Report groundwater levels published 1 - 2m = average 1.3m)
Recent drilling in the area indicates tidal groundwater at a depth of 10–70 cm.

In June 2011, EQC published the following map outlining insurers' assessment of the damage. We experienced over 100 earthquakes of magnitude 4 and greater after this map was published. Large areas were written off by the insurance industry.



Christchurch Building damage (Black = uneconomic to repair) CERA, 23 June 2011

Correspondence with Bruce Emson of EQC produced the following response:
“The map that you refer to (‘Aggregated Building Damage Map’) was originally presented on 22 June 2011 and in the context of the first Red Zone discussions. This map was not ‘EQC data’ as EQC had no part in the collection or compilation of the base data. Please also note that this map has not been updated since 2011, so the information it contains will be out of date and not reflect, for example, recent MBIE Guidelines.”

On 23 December 2011, the Port Hills Fault generated around 200 earthquakes in the vicinity of South Brighton. The area had just been green zoned.

Bob Parker, John Key and Leanne Dalziel all commented on likely zone changes after this event.

Source: <http://news.smh.com.au/breaking-news-world/more-of-christchurch-likely-to-be-rezoned-20111226-1p9wi.html>

Following this in August 2012, the Stage 3 Land Report was published; As mentioned before, calculations excluded 10% of the worst affected damage in Christchurch. The LiDAR maps published predated over 100 earthquakes of magnitude 4 and above.

From the facts set out above, it appears that there are no limits to the level of risk that will be transferred to Christchurch residents.

While we understand that there has to be a balance between the risk that can be transferred to the residents and the costs incurred, we strongly believe that there needs to be a risk matrix in place where the amount of risk is identified and set to an acceptable level.

To sum up, we ask the following questions of you, in your capacity as the Minister for the Canterbury Earthquake Recovery. Why is the New Zealand government:

1. introducing MBIE Guides and PMO Guides that degrade the standard of repairs?
2. encouraging the unsustainable practice of jack-and-pack in a seismically active area?
3. changing legislation so that insurance companies are not bound by the Fair Trading Act and the Consumer Guarantees Act?
4. removing most liability from the Building Act?
5. excluding all consumer guarantees from the Building Act and leaving them to be passed as law at parliament's discretion?
6. devaluing insurance so that in the future "replace as previous condition" will apply instead of "replace as when new"?
7. widening the definition of Good Ground (Standard)?
8. ignoring the Port Hills Fault Line (the deadliest fault line in the South Island's history) in regard to building regulations?
9. publishing misleading land information regarding subsidence and groundwater levels?
10. enforcing Existing Use Rights that are voided when land suffers a landslide/lateral spreading?
11. introducing practices that bypass the inspection process?
12. introducing practices that transfer all risk and liability from the government and insurance companies to the residents?

Christchurch residents had unusually high insurance cover before the earthquakes. What appears to be happening here is that the Government has taken it on itself to usurp our paid insurance cover.

The following quote is taken from the EQC Customer Advocacy Group Meeting Notes - 9 April:

T&T and the EQC Land Team have run a series of workshops with banks, valuers, realtors, lawyers and insurers to explain land damage and settlement with the aim of getting everyone on the same page with their understanding.

This is a further example of the total disregard for consultation with residents, one of the points of criticism made in the Auditor General's report on the EQC. What about those people who actually suffered the damage. Were they to be put on a different page?

13. Why is there not a risk matrix in place to evaluate how much risk can be passed on to Canterbury residents?
14. Why has land damage not been considered for rezoning as a result of the 23 December 2011 and following earthquakes?
15. Why are consumer guarantees the only exclusion in the latest law change (20. Nov. 2013) (Building Amendment Act No 4) and no time given for commencement?

The Duty of Care.

The Crown is neglecting its duty of care and if these very real risks are realised is opening itself up to a tortious liability claim under the Crown Proceedings Act 1950.

Risk management in South Brighton

As matters stand, the risk being passed on to the residents of South Brighton is extremely high and it has dramatically increased due to the earthquakes. It includes the following:

- Inundation – increased risk due to land subsidence both from tidal and stormwater flooding.
- Flash flooding, high risk area – new risk due to velocity of water, increased due to seismic and tidal flood event. A one in a 100-year flood event is likely to top the flood-banks and cause them to burst. A large seismic event (ULS) could cause the area to subside more than the level flood banks provide protection from.
- Subsidence risk has significantly increased due to higher groundwater and reduced bearing capacity.
- Liquefaction risk has significantly increased due to higher groundwater.
- Seismic risk has now significantly increased, The Port Hills fault line lies under South Brighton at a depth of around 700 m. This is the South Island's deadliest fault line, capable of producing an earthquake of magnitude 7, causing elevation on the south side and subsidence on the north side of the fault.
- Erosion risk has significantly increased due to land subsidence. The potential consequences are much worse due to large parts of the area being below high tide.
- Tsunami risk is unchanged.
- Risk of lateral spreading has significantly increased due to higher ground water. As many properties are already below mean high water springs. If further seismic activity occurred, properties would subside and groundwater would rise further, even above ground. Rendering the area uninhabitable.

Probability of seismic events in the Canterbury region (Source: GNS science)

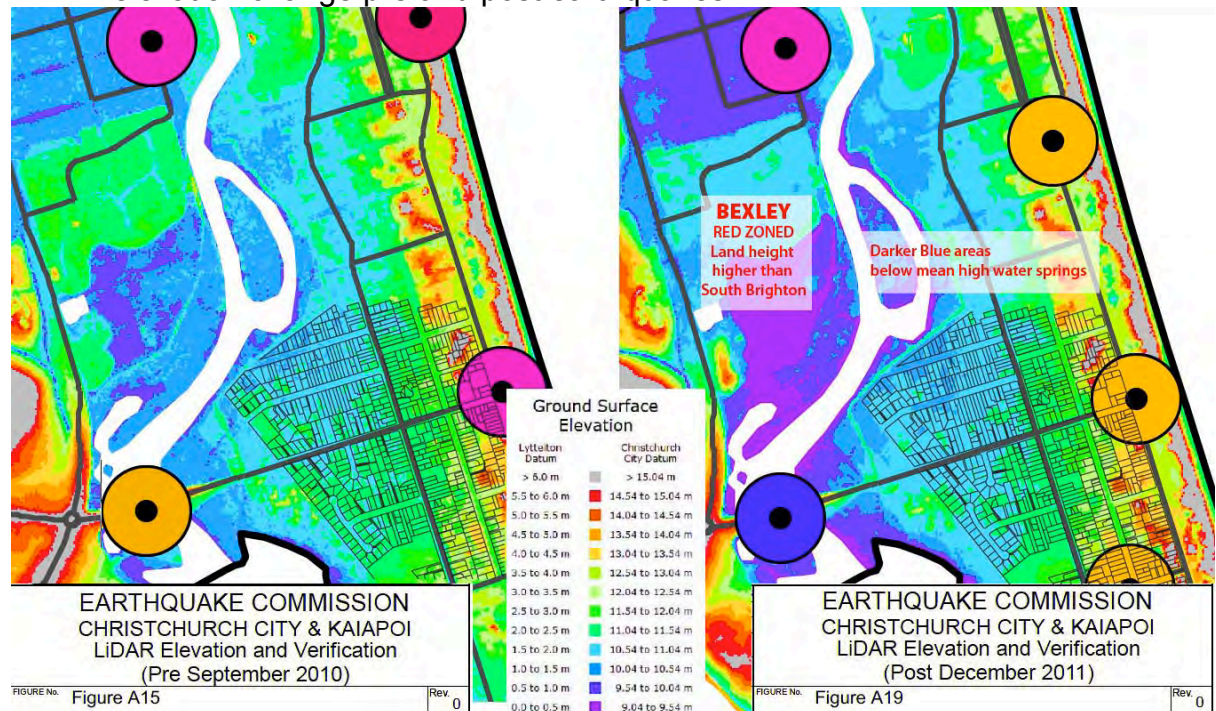
These figures are for the **entire** aftershock zone, not just for Christchurch City. The zone extends from Hororata in the west to large parts of Banks Peninsula, and from Kaiapoi in the north to Lincoln in the south.

Canterbury region long-term probabilities									
	M5.0-5.9			M6.0-6.9			M ≥7.0		
	Average number	Range	Probability of one or more	Average number	Range	Probability of one or more	Average number	Range	Probability of one or more
Within 1 month	0.11	0 - 1	11%	0.009	0 - 1	1%	0.0007	0 - 1	<1%
Within 1 year	1.13	0 - 4	68%	0.093	0 - 1	9%	0.007	0 - 1	1%

Issued on Friday 1 November 2013 for the coming month.

Source: <http://info.geonet.org.nz/display/home/Aftershocks>

LiDAR elevation change pre and post earthquakes



These images are colour corrected from the Geotechnical Database Orbit. On the original published images, almost identical colour was applied to both below and above mean high water springs (10.8 m Christchurch datum.) This gave the public a false impression of increased elevation.

In conclusion, it is no surprise that some residents of Christchurch are beginning to wonder if there is any limit to the level of risk that the Government plans to transfer to them.

The link below supplies you with a presentation that was passed on to you after being presented to the CERA Community forum 6 June 2013. We have not seen any actions taken following this presentation that have addressed the identified problem.

http://issuu.com/brightsidepublishing/docs/repairmafina_2

I respectfully request that you answer these questions within 20 working days.

On behalf of the residents of Christchurch.

Sincerely
Hugo Kristinsson
hugo@absolute-proof.com

All statements in this letter are factual and can be backed up by evidence.