BRANZ

ISSUE 700 BULLETIN

NATURAL HAZARD INFORMATION FOR BUILDING SITES

July 2025

- It is crucial to understand the natural hazards that may apply to a building site before any design work begins.
- The amount of information available has grown substantially in recent years.
- This bulletin outlines the main sources of natural hazard information publicly available.

1 INTRODUCTION

1.0.1 The impact of natural hazards on the built environment can be enormous. After the Canterbury earthquakes of 2010/11, private insurers and the (then) Earthquake Commission paid out $31 billion in claims. Flooding in early 2023 is estimated to have caused damage costing up to $14.5 billion. There is evidence that natural climate hazards such as flooding and landslides are likely to become more frequent or more severe in coming decades.

1.0.2 The current building controls system does not stop development on sites at risk of natural hazards and does not protect homeowners from all future consequences of this development. A government discussion document in 2023 identified that the way local authorities identify natural hazards and assess risk and risk tolerance is variable throughout the country. "There is currently no national direction to guide decision-making on development proposals and to require risk assessments where natural hazards are a concern. As a result, decision-makers sometimes attribute less weight to natural hazard risk than to other matters, such as the need for new infrastructure and housing."

1.0.3 Construction of new homes on sites at risk of natural hazards is still continuing. In January 2025, Auckland Council reported as part of its Monthly Housing Update that, in the previous 12 months as of November 2024, 2,013 new dwellings consented (14% of all dwelling consents issued) were on properties overlapping hazard areas. Hazard areas include flood plains, flood-prone areas, tsunami evacuation zones, areas of coastal inundation and areas susceptible to coastal instability and erosion. Research by NIWA and the University of Auckland published in 2023 found that, while construction in areas potentially subject to flood hazards has slowed from earlier decades, total floor area and replacement value have continued to increase. (Councils can impose specific requirements on consents to mitigate potential damage such as requiring that new builds in higher-risk zones have higher floor levels. Dunedin recently updated its minimum floor level requirements in this regard. It is also a common requirement in new developments around the country that overland flow paths for floodwaters are protected.)

1.0.4 Property owners, building practitioners and legal advisers should ensure an appropriate risk assessment is carried out for any new building work on a site subject to one or more natural hazards. This requires accessing and analysing information about the hazards applicable to the site. In some cases, specialists in areas such as geotechnical engineering may need to be consulted.

1.0.5 Understanding the information is crucial:

- Potential hazards may impact the appropriate activity on a site, design of new work, the precise location of work on the site or the materials or methods used.
- There may be additional requirements for buildings in areas such as flood plains or areas identified as highly susceptible to landslides.
- The natural hazards may increase consenting and construction timeframes and costs.
- Consideration should be given to whether the building should be located and designed to allow future relocation to another site if natural hazards may worsen over time such as sea-level rise.
- In some circumstances, the risks facing a property may affect whether it can be insured, whether the local authority bears any liability for damage arising from the identified hazard and whether the Natural Hazards Commission Toka Tū Ake (NHC) can deny future claims for natural hazard damage.
- The risk of natural hazards may impact future value or saleability of the property.
- The risks found may even determine whether work goes ahead or not.

1.0.6 On some sites, risks are reasonably low and can be managed with appropriate planning, design and construction. On other sites, the hazard risk is so high that the sites should not be built on at all.

1.0.7 Recent decades have seen enormous growth in the amount of information available. Much of this has been in readily accessible digital resources such as online maps. In many cases, new resources have been driven by legal obligations on local authorities to provide specific information such as areas at risk of liquefaction or natural hazards more broadly.

1.0.8 The definition of natural hazard varies across legislation:

- Under the Building Act 2004 (sections 71–74), natural hazard means erosion, falling debris, subsidence, inundation (including flooding and storm surge) and slippage. It does not include earthquake, tsunami, volcanic or geothermal activity, wind, drought or fire.
- Under the Natural Hazards Insurance Act 2023, natural hazard means earthquake, hydrothermal activity, landslide, tsunami, volcanic activity, flood, storm and natural hazard fire. Wind or water causing gradual erosion is not a natural hazard.
- Under the Resource Management Act 1991 (RMA), natural hazards include earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire or flooding, "the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment".

1.0.9 The topic of this bulletin is the subject of considerable research currently under way, and the resources available are likely to change and expand in coming years.

1.0.10 This bulletin is a companion to BU701 *Building on land subject to flooding and/or landslides* and BU702 *Construction work after an emergency*.

2 RECORD OF TITLE

2.0.1 A record of title proves the ownership of land and the rights and restrictions applying to it. A copy of the record of title should be obtained from Land Information New Zealand at the very earliest stages of planning new construction work. In some cases, what potential homeowners find on a record of title may dissuade them from going ahead with work or may have an impact on the type of construction work they plan.

Coastal erosion is considered a natural hazard under some laws but not others.

2.0.2 The type of title – freehold, leasehold, unit title, cross-lease and so on – can determine what individual owners can or cannot do. For example, with the assessment of flood-damaged apartment blocks and cross-lease properties following the floods in early 2023, approval was needed from all related parties before some mitigation work could go ahead.

2.0.3 Where access driveways run through road reserve land, some homeowners assume that, if a landslide affects their driveway in road reserve, the council will fix it. This is generally not the case.

2.0.4 If NHC cancels building cover or land cover for a property under section 49 of the Natural Hazards Insurance Act or limits its liability for future damage under section 50, that must be recorded on the record of title. This may happen when a homeowner has not begun making repairs to a substantially damaged property within a reasonable timeframe. (NHC can also decline a claim due to other circumstances under section 67 of the Act.)

2.1 BUILDING CODE AND BUILDING ACT NOTICES

2.1.1 The Building Code is primarily concerned with life safety and does not necessarily require any additional specific requirements in terms of buildings themselves on land subject to natural hazards.

2.1.2 Sections 71–74 of the Building Act deal with building on land subject to natural hazards. If building consent is given under section 72, sections 73 and 74 set out a process where a note will be added to the record of title. This will show that a building consent was granted under section 72 of the Building Act, identifying the natural hazard concerned.

2.1.3 A section 72 note on a property title means:

- the building consent authority is exempted from liability for damage arising from the natural hazard (under section 392)
- NHC can fully or partly decline claims, depending on the hazard
- insurance companies may decline cover or may exclude cover for the relevant hazard.

2.1.4 The potential loss of insurance cover has implications for mortgage availability, since mainstream mortgage providers such as banks almost always require that a property be insured as a condition of providing mortgage finance. A property with a section 72 note on it may therefore be more difficult to sell or may sell for a lower price.

2.1.5 A section 72 notice can be removed from the title if the property owner demonstrates that they have carried out adequate work to protect the land and building work from the identified natural hazard or local infrastructure changes have eliminated or mitigated the risk.

2.1.6 Relevant MBIE determinations should be considered if it is likely that a council may apply these sections of the Building Act.

3 COUNCIL INFORMATION

3.0.1 City, district and regional councils hold a lot of information about natural hazard risks in their area and should be an early port of call. In many cases, maps of areas at risk of liquefaction, erosion and so on can be found on their websites. To obtain information about a specific property, obtain a land information memorandum (LIM) and a property file from councils that offer these.

3.0.2 Ask the council if a building project requires just a building consent or also a resource consent. The

district plan may require a resource consent for new developments in flood-prone areas, coastal hazard zones and so on.

3.1 MAPS OF NATURAL HAZARDS

3.1.1 Most council websites have different types of maps of natural hazards in the council's area of responsibility. The detail of information available may reflect the nature and scale of local natural hazards and experience with natural hazard events. As an example, Christchurch City Council has a greater level of detail in its mapping than some other councils, reflecting its experience following the Canterbury earthquakes of 2010/11. Natural hazard maps supplied by territorial authorities often carry disclaimers that they may not contain the most specific or up-to-date information. The maps are generally indicative – a site-by-site, street-by-street identification of all natural hazards by a territorial authority is not physically practicable. The NHC Natural Hazards Portal links to council maps and portals.

3.1.2 Maps can show the level of exposure or susceptibility to various hazards:

- Liquefaction that could occur during an earthquake – this is the map for Wellington City Council urban areas.
- Flooding, which may be rainfall flooding, river flooding or coastal flooding (accounting for storm surges, higher tides and so on) – this is the Auckland Council flood viewer.
- Landslide or slope hazard – these are slope hazard maps for Tauranga City Council. Auckland Council will soon have a landslide susceptibility map published for the Auckland region that identifies areas with varying levels of susceptibility to landslides.
- Erosion – Northland Regional Council has maps showing areas that may be subject to coastal erosion.
- Coastal hazards, which typically apply to low-lying coastal land – this is the map for Tasman District Council.
- A wide range of other hazards have been mapped, including things such as acid sulphate soils and mining subsidence.

3.1.3 Most councils map natural hazards through their RMA plans and policy statements. For example, regulatory hazard maps can be found in district, regional and unitary plans and regional policy statements. Some councils have non-regulatory natural hazard portals instead to provide this information (such as the Auckland Council flood viewer).

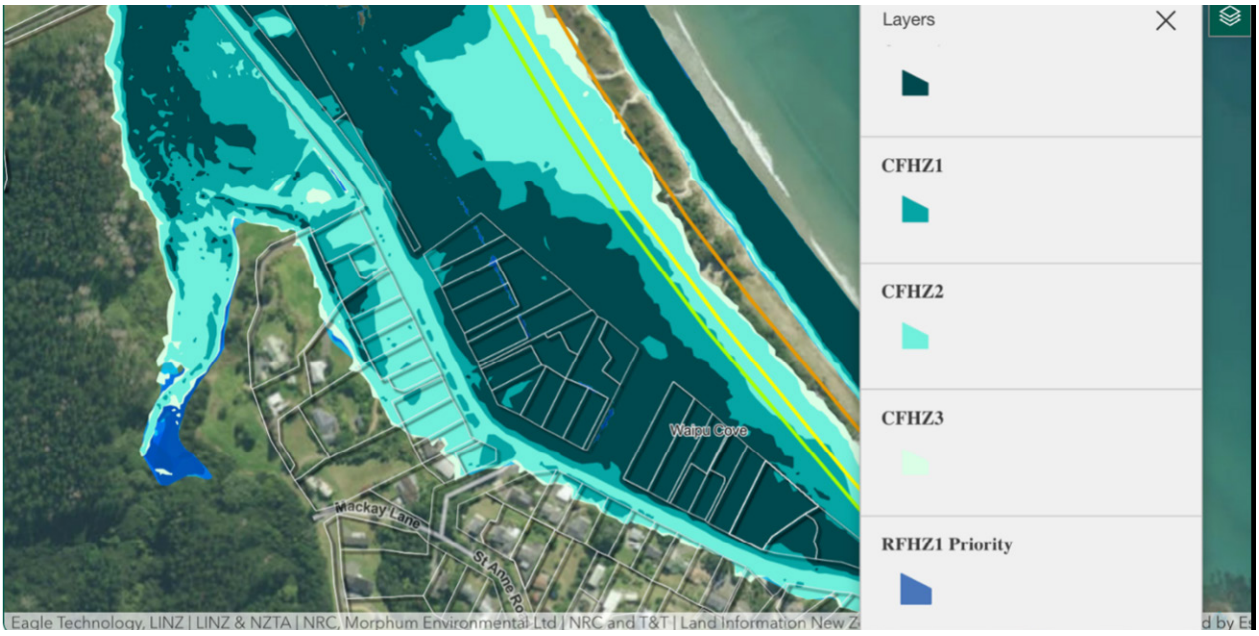
3.2 LIM REPORTS AND PROPERTY FILES

3.2.1 A LIM report from a city or district council may include information on:

- district plans, plan changes and notices of requirement
- potential erosion, subsidence or slippage, flooding and liquefaction
- presence of hazardous substances
- red or yellow placards from rapid building assessments following a hazard event
- whether a damaged property has undergone assessment/categorisation or whether the owner opted out
- stormwater and sewerage drains
- rates, including overdue rates
- building, plumbing/drainage and resource planning consents, compliance schedules/building warrants of fitness, licences, development contributions
- information notified to the council by any statutory organisation.

3.2.2 LIM reports are prepared on request and there will be a charge. Residential LIMs typically cost around $300–600 depending on the council, with higher charges for urgent service (less than 10 days) or very complex properties.

3.2.3 For many years, councils that proposed adding natural hazard details or maps to their property files (and LIM reports) often faced fierce resistance from homeowners with at-risk properties. In many cases, the council backed down and the information was not added to property files. How different councils provided natural hazard information in LIMs also varied greatly.



Areas susceptible to different types of coastal flooding in an online map. (Source: Northland Regional Council)

3.2.4 This was addressed with an amendment to the Local Government Official Information and Meetings Act 1987. Since 1 July 2025, councils must include in a LIM report understandable information known to them about natural hazards in relation to land. This must include the impacts of climate change that exacerbate natural hazards, including cumulative effects of hazards applying to the land concerned. The law change protects councils, removing liability in civil or criminal proceedings for making the information available in good faith. The law also requires regional councils to pass on what they know about natural hazards to city and district councils.

3.2.5 Guidance has been prepared to help councils implement the changes. This makes it clear that LIM reports are just information disclosure tools and councils are not required to provide property-specific risk assessments or other further analysis for a LIM. Anyone purchasing a LIM report is still expected to undertake their own risk assessments.

3.2.6 The regulations set out broad headings that councils must use to help achieve nationwide consistency. Councils must include either known maps of natural hazards affecting a property or provide a link to an online natural hazard mapping portal with the known maps of natural hazards affecting a property. (The scope of what is 'known' is limited by regulation.)

3.2.7 A LIM report is not the same thing as a property file. A property file can also be obtained from many councils. Depending on the council, a property file can include correspondence about a property and some building and resource consent documents that are not included in a LIM report. There is also information included in LIM reports that is not in a property file (such as links to online hazard information). For the most comprehensive understanding of a property, obtaining both is necessary where possible.

3.3 SPECIFIC COUNCIL REQUIREMENTS AND GUIDANCE

3.3.1 In addition to providing information, councils can apply mandatory requirements to new building work in identified hazard zones. Information about these should be obtained early in the planning stage. These are some examples:

- Higher floor levels in flood-prone or low-lying areas. Dunedin is one city where this applies. A 2025 update sets a new minimum floor level of 3.05–3.17 m above sea level in certain areas.
- Installation of stormwater retention or detention tanks. Kāpiti Coast District Council is one of many that requires new developments to attenuate or dispose of rainwater on site.
- A bund to protect against flooding or a barrier pile wall to protect against land instability. (A bund is typically a compacted earth or gravel structure.)

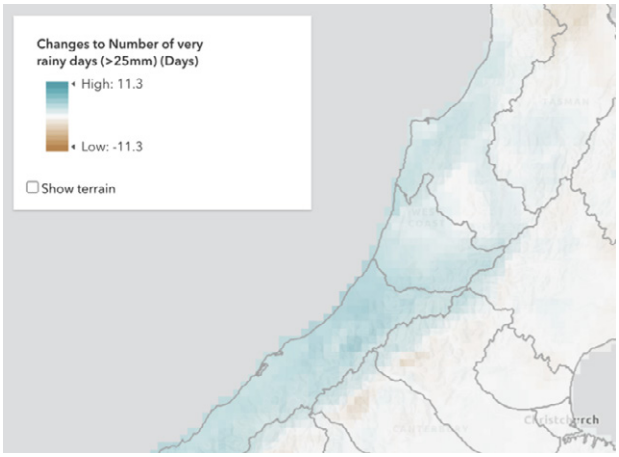
3.3.2 There may also be guidance (as opposed to requirements) available to help. For example, Auckland Council has Freeboard for the Auckland Region.

4 NATIONAL SOURCES OF INFORMATION

4.0.1 There are good sources of information nationally about natural hazards around the country:

- New Zealand Active Faults Database and webmap (GNS Science) – high-resolution active fault surface traces down to the property scale for some regions (Hawke's Bay, Manawatū-Whanganui (Horizons), Wellington and Tairāwhiti Gisborne regions as well as the northern Alpine and Wairau faults at the time this bulletin is published. More areas will be added as funding permits and work progresses.) The resource includes a high-resolution (1:10,000 scale or better) active fault surface trace layer on the webmap, with Fault Avoidance Zones and Fault Awareness Areas, where available.
- New Zealand National Seismic Hazard Model (GNS Science) – calculates the likelihood and strength of earthquake shaking that may occur in different parts of New Zealand over specified time periods.
- Landslide Database (Auckland Council) – detailed descriptions of validated landslides in some North Island areas.
- High Intensity Rainfall Design System (HIRDS) (NIWA) – estimates the magnitude and frequency of high intensity rainfall at any point in New Zealand.
- NZ SeaRise (Antarctic Research Centre, Victoria University of Wellington) – estimated future sea-level rise and vertical land movement around the coastline.
- Coastal Flood Layers Viewer (NIWA) – relative sea-level rise to show the extent of possible flooding.
- Climate Projections Map (Ministry for the Environment) – projected future changes to New Zealand's temperature, rainfall and wind under different scenarios at a 5 km resolution.
- Tsunami evacuation zones (NEMA) – areas that could be affected by a tsunami and location of tsunami evacuation zones.

4.0.2 While these national resources are useful, be aware that councils may use local information instead and many have their own specific climate projections. For example, Auckland Council uses Guidelines for stormwater runoff modelling in the Auckland Region and not HIRDS.



The Climate Projections Map shows estimates of features such as changes to the number of very rainy days. (Source: Ministry for the Environment)

5 INSURANCE COVER

5.0.1 Before any work is undertaken, consult insurance companies about the site and ask about the cover they may offer, including any higher premiums, higher excesses or exclusions as a result of natural hazard risks.

5.0.2 A 2024 Treasury release shows insurance is harder to find online in areas with both high flood and earthquake risks. "Property owners might struggle with costs due to high earthquake insurance premiums, even without flood risk." On average, around 25% of high-risk homes had flood risk premiums costing at least an extra $250 per year compared to those without flood risk. Excesses of $2,500–5,000 are not unusual for flooding.

5.0.3 The Insurance Council of New Zealand says that sea levels in New Zealand are projected to rise 30 cm between 2015 and 2065, which will result in current 1-in-100-year coastal flooding events occurring every 4 years in some places. "It is fundamentally important New Zealand … prevents future development or densification in high-risk areas where the risk cannot be mitigated."

5.0.4 Several research projects have identified areas where homes are likely to lose insurance cover because of natural hazard risks. One 2024 report estimated that 10,000 coastal properties in Auckland, Wellington, Christchurch and Dunedin could become uninsurable by 2050 as a result of coastal erosion and inundation.

6 PLACARDS AFTER A NATURAL DISASTER

6.0.1 Red, yellow or white placards can be issued to a property after a natural disaster, telling homeowners whether their property is safe to be in. The information is added to the council property file and recorded on property LIMs. Placards are not assessments of future or long-term hazard risk or the viability of the land for rebuilding.

6.0.2 The council will remove a red or yellow placard once it sees evidence that damage to the property has been fixed or the property has been made safe. The placard will be updated on the property file from open to closed and this will appear on a LIM report prepared for the property. Some white placards may be issued with an expiry dates, after which the placard can be removed.

7 EARTHQUAKE-PRONE BUILDING REGISTER AND NATURAL HAZARDS PORTAL

7.0.1 The earthquake-prone buildings legislation (Part 6A of the Building Act) only applies to residential buildings that are at least two storeys and either contain three or more household units or are used as a hostel, boarding house or other specialised accommodation. Territorial authorities must enter information about earthquake-prone buildings into a public register maintained by MBIE.

A red-stickered property affected by landslide.

7.0.2 The Natural Hazards Portal gives information about natural hazards and has a map of settled NHC claims. You can enter an address or zoom to a specific area and click on a property to see if there are NHC claims on it. Claims are listed for all hazards defined under the Natural Hazards Insurance Act, including storms and floods and landslides. The portal provides high-level information for settled NHC claims since 1997. To get more details about a specific claim, you need to fill out an information request form.

7.0.3 If you plan construction work on a property that has been the subject of an NHC claim, obtain the details from NHC, check whether the claim has been resolved and check what work was done. Check that NHC has not cancelled its cover or limited its future liability for the property.

7.0.4 Where a property being sold has an active NHC claim, it can be transferred to the new owner, giving them the same rights and benefits as the previous owner. Assigning a claim with a deed of assignment should be done with legal advice.

8 COMMISSIONED REPORTS

8.0.1 In some cases, information may only be obtained from a new general or specialised property inspection. This will be particularly relevant in an area hit by earthquakes, serious floods, subsidence and so on. It is also recommended where damaged properties are being sold "as is, where is". These properties may not have been insured or may have been written off by insurers or the owners may have opted not to carry out repairs.

8.0.2 If there may be geotechnical issues with a property – for example, it is on a steep slope or there is evidence of landslides in the area – request a geotechnical report from a chartered professional engineer or a professional engineering geologist. The council may also require this as part of a consent application.

9 OTHER SOURCES OF INFORMATION

9.0.1 Some companies provide natural hazard information for clients such as insurance companies. When their data is publicly available, it may be useful to consider it.

9.0.2 BRANZ has worked in the areas of durability and resilience for decades, and resilience of buildings to natural hazards was determined in the BRANZ Investment Priorities Statement 2024 as one of four focuses for research in 2025/26 (and of course resilience will continue in BRANZ work well beyond these dates). Some relatively recent resources are shown below. BRANZ also has the BRANZ Maps online tool, which shows earthquake, corrosion and climate zones and rainfall intensity for a specific property.

9.0.3 Even slightly older BRANZ resources can still have valuable information. One example is Study Report SR346, which considers the costs and benefits of sustainability and resilience features in houses. This research found that, for frequent floods (less than an average 20 years return period), raising the house above flood level was the cheapest response. For flooding that occurs less frequently than once every 20 years, it may be cheaper to simply reinstate after every flood. With recent construction cost inflation, there may be a bit of variance, but if wanting to build in frequent flood zones, raising the house could be a viable option.

10 MORE INFORMATION

BRANZ

- BU702 *Construction work after an emergency*
- BU701 *Building on land subject to flooding and/or landslides*
- BU696 *Seismically resilient design*
- BU674 *Seismic retrofitting houses with piled foundations on sloping sites*
- BU666 *Restoring a home after flood damage*
- BU536 *Upgrading piled foundations to resist earthquakes*

MBIE

- Natural hazard sections of the Building Act
- Step-by-step guide: Natural hazard decision making process
- Some recent resources on resilient homes

MINISTRY FOR THE ENVIRONMENT

- Climate Projections Map
- Coastal hazards and climate change guidance
- Our atmosphere and climate 2023

NATURAL HAZARDS COMMISSION TOKA TŪ AKE

- Natural hazards portal
- Slopes and retaining walls
- Buying a home checklist

OTHER

- Landslides NZ

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