

NH

Natural Hazards

**DRAFT
WAITAKI DISTRICT PLAN**



Waitaki

DISTRICT COUNCIL
TE KAUNIHERA Ā ROHE O WAITAKI

Natural Hazards

Introduction

The Waitaki District is vulnerable to a wide range of natural hazards. All of the hazards can affect people, property, infrastructure and the wider environment. More significantly, these natural hazards can lead to a loss of human life. Therefore, it is important to recognise these hazards and to manage activities in order to limit the exposure of people, property and the environment to risk.

Flooding: There are two flooding overlays in the District, the Flood Assessment Overlay and the Waitaki River Floodplain Assessment Overlay. The Flood Assessment Overlay is split further into two areas – Canterbury and Otago.

The Flood Assessment Overlay includes land identified by the Otago and Canterbury Regional Councils where flood hazard may affect public safety, buildings and the infrastructure that supports communities. Environment Canterbury and Otago Regional Council have reviewed their flood hazard mapping using historic flooding information, more up-to-date and accurate topographic information, staff knowledge, site visits, and computer-based flood modelling in a few small areas.

The new mapping more accurately defines the major floodplains in the Waitaki District, giving a clearer indication of where flooding is possible. It does not provide any information on how often flooding may happen or how severe it might be. The mapping is intended to identify land where the potential for flooding may exist and should be investigated further at a site-specific level if subdivisions or buildings are proposed. Land within the mapped areas has not necessarily flooded in the past.

The mapping is focused on areas floodable from rivers or major streams, and doesn't include local surface runoff flooding. It is also focused on rivers and streams close to existing development, or where there is potential for future development. There are many rivers and streams in remote areas of the district, which often flow in narrow gorges through steep hill country; these remote streams and upper river catchments are impractical to map and are not under any significant development pressure, so were not included in the mapping.

The Waitaki River Floodplain Assessment Overlay covers land on the southern side of the Waitaki River that may be subject to flooding from the Waitaki River and has been developed using a computer hydraulic model to describe and map the flood hazard characteristics associated with the lower Waitaki River floodplain.

This chapter includes objectives, policies and rules for activities, subdivision, land use and development occurring within the Flood Assessment Overlay areas.

Land Instability: Land instability refers to land, generally steep slopes and cliffs, which has the potential to slip when saturated with water, or during a strong earthquake. Geological characteristics and soil types in the District mean that some areas are at risk of land instability. The Moeraki area has an extensive history of land instability and slips.

The chapter includes objectives, policies and rules regulating land use in the Moeraki area which is supported by detailed research and analysis of the risk to people, property and the environment.

Note that there is no land instability data currently held for the Canterbury part of the Waitaki District.

Alluvial Fans: An Alluvial Fan Awareness Overlay has been applied to alluvial fans in the Waitaki District. The alluvial fan information available is limited and the risk is understood to be low, therefore it does not warrant control at an individual development level. Additionally, the alluvial fan mapping has been done at a regional scale which is not sufficiently detailed to support land use planning rules or to trigger resource consenting requirements. The alluvial fans in the Waitaki District are considered lower risk than those that would be found in more mountainous terrain.

Note that there is no alluvial fan data currently held for the Canterbury part of the Waitaki District.

Surface Fault Rupture: Surface fault rupture is a different, and less common, earthquake hazard from earthquake shaking. It is the permanent ripping and warping of the ground surface along a fault as the ground on one side moves sideways and/or up, relative to ground on the other side during an earthquake on that fault. Surface fault rupture will generally only occur when the earthquake on a fault is magnitude 7 or larger. The ripping and buckling of the ground from movement on a fault only affects a narrow area of land a few tens to a few hundreds of metres wide along the fault. If the location of faults is known, development can be avoided or managed in those areas to reduce the likelihood of buildings or infrastructure being damaged in future earthquakes on those faults. Known and suspected active faults in the District have been mapped as part of regional fault mapping programmes. A Surface Fault Rupture Hazard Overlay is included for awareness purposes. There are also objectives, policies and rules for subdivision and critical facilities within the overlay area. Deformation associated with faults hasn't been mapped at a suitable scale to draw fault avoidance zones.

Liquefaction: Liquefaction is a process whereby soil behaves more like a liquid than a solid during strong earthquake shaking. This can cause heavy things on the soil (like houses) to tilt or sink, things buried under the soil (like tanks) to float upwards, and can cause sediment to be ejected up to the ground surface to form 'sand boils', or in extreme cases, sheets of sand and silt. The Liquefaction Assessment Overlay in the Plan covers areas identified by the Regional Councils where the local geology, soil type and groundwater level indicate that damage from liquefaction is possible and requires further site specific investigation.

Wildfire: Wildfire is a fire which mostly occurs in a rural area, where typically there is a build-up of easily combustible vegetation. Wildfires may be caused by natural sources, such as lightning, accidental man-made ignition, such as a cigarette butt, sparking from the use of machinery, or from an out of control rubbish or crop burn-off fire, or it may start as a result of arson. The Plan manages risk from wildfire through applying setbacks for buildings from woodlots and shelter belts.

Other natural hazards

The District is also susceptible to additional hazards, such as severe winds, cyclones, droughts, and naturally occurring hazards. Civil Defence Emergency Management (CDEM) plays a role in hazard management and some risks from events with low probability but high potential impact are better addressed through measures put in place by CDEM. Along with the District and Regional Councils, CDEM also plays an education role in responding to natural hazards. WDC also has functions under

the Building Act 2004 pertaining to management of natural hazards, such as, in respect of buildings in wind zones, building to withstand earthquake shaking and snow loadings, and building on land subject to natural hazards.

Approach to natural hazards in the Plan

The effects of natural hazards vary in terms of both their likelihood and consequence. Some natural hazards may occur relatively frequently and may damage property, whereas other natural hazards occur infrequently, but when they do occur, they pose serious risk to life.

The Plan manages natural hazards through policies and rules attached to different hazards and overlays. The rules vary according to the type of natural hazard, the risk it poses and the sensitivity of the activity proposed. The overlays and mapped areas are based on the best available information at the time of preparing the Plan. However, inevitably, due to the scale of areas covered by the research and modelling used to produce the maps, there may be variations at the site-specific level.

A flexible risk-based approach has been adopted to address the risk associated with natural hazards. A risk-based approach to natural hazards balances allowing for people and communities to use their property and undertake activities, whilst also limiting the risk of harm to life or significant assets as a result of a natural hazard event. The District Plan also advocates an adaptive management approach to managing natural hazards and the effects of climate change.

Natural hazards are addressed in two chapters; the Natural Hazards Chapter covers non-coastal hazards and the Coastal Environment Chapter covers coastal hazards. Both chapters take the same risk-based approach to natural hazards. To avoid duplication, this chapter provides an overview of all hazards within the Waitaki District and the risk-based approach to managing those hazards (both coastal and non-coastal). However, the objectives, policies and rules in the Natural Hazards Chapter do not cover coastal hazards. The objectives, policies and rules in the Coastal Environment Chapter address coastal hazards.

Objectives

NH-O1 Natural hazard risk

The risks from natural hazards, including the effects of climate change, and their impact on people, property and the environment is recognised and understood, and avoided or appropriately mitigated.

Policies

NH-P1 Identification of natural hazard areas

As information becomes available, identify and map land that may be subject to natural hazards, including taking into account the effects of climate change.

NH-P2 Climate change

Require the likely effects of climate change to be considered when assessing risk from natural hazards.

NH-P3 Risk based approach

Avoid subdivision, use and development in areas where natural hazards may occur, unless it can be demonstrated that the risk from natural hazards to people, property, and the environment can be mitigated to an acceptable level, taking into consideration the:

1. likelihood of the natural hazard event; and
2. type and characteristics of the natural hazard; and
3. potential consequence of the natural hazard event, including cumulative effects; and
4. effects of climate change.

NH-P4 Critical facilities

Avoid locating critical facilities in known natural hazard areas, unless it can be demonstrated that:

1. it is not practicable to locate outside the area; and
2. there are operational needs or functional needs for the location; and
3. the design and function are resilient to natural hazard risk.

NH-P5 Natural protection features

Encourage the use, protection, maintenance and enhancement of natural features, buffers and systems, such as wetlands and vegetation, which provide protection from natural hazard risk.

NH-P6 Site specific assessment/investigation

A risk assessment will be required for subdivision, use and development in areas subject to risk from natural hazards that takes into account all of the following:

1. the type, frequency and scale of the natural hazard and whether the effects will likely be temporary or permanent; and
2. the type of activity being undertaken and its vulnerability to natural hazard events; and
3. the consequence of a natural hazard event in relation to the proposed activity; and
4. the suitability of any proposed new allotment and intended future use; and
5. the potential effects, including positive effects on public health and safety and other property; and
6. the potential effects, including positive effects on social, cultural and economic well-being; and
7. any exacerbation of an existing natural hazard risk; and
8. any risk reduction or hazard mitigation measures proposed, including relocation and recovery; and
9. any opportunities to take an adaptive management approach to addressing the risk.

NH-P7 Canterbury Flood Assessment Overlay

Avoid subdivision, use and development in the Canterbury Flood Assessment Overlay where a site specific assessment identifies the site as a High Hazard Area, unless it can be demonstrated that the risks can be mitigated so that:

1. it is not likely to result in loss of life or serious injuries in the event of a natural hazard occurrence; and
2. there is not likely to be significant damage or loss in the event of a natural hazard occurrence; and
3. it is not likely to require new or upgraded hazard mitigation works to mitigate or avoid the natural hazard; and
4. it is not likely to exacerbate the effects of the natural hazard.

In all other cases, where the site is not in a High Hazard Area, provide for subdivision, use and development where:

1. significant adverse effects on people and property are avoided; and
2. the use or development is not likely to suffer material damage in a flood event; and
3. new buildings have a floor level that will avoid inundation in a 0.5% Annual Exceedance Probability (AEP) flood event or are otherwise designed to mitigate damage to property from a flood event; and
4. spaces that store hazardous substances will not be inundated.

NH-P8**Otago Flood Assessment Overlay and Waitaki River Floodplain Assessment Overlay**

Provide for subdivision, use and development in the Otago Flood Assessment Overlay and Waitaki River Floodplain Assessment Overlay where:

1. significant adverse effects on people and property are avoided; and
2. the use or development is not likely to suffer material damage in a flood event; and
3. new buildings have a floor level that will avoid inundation; and
4. spaces that store hazardous substances will not be inundated.

NH-P9**Moeraki Land Instability Overlay**

1. Avoid subdivision, use and development in the very high and high risk areas, unless a geotechnical assessment can demonstrate that the risk can be mitigated to an acceptable level; and
2. manage subdivision, use and development in the moderate risk area where a geotechnical assessment can demonstrate that the risk can be mitigated to an acceptable level; and
3. provide for subdivision, use and development in the low and very low risk areas, where a geotechnical assessment can demonstrate the risk is acceptable.

NH-P10**Surface Fault Rupture Hazard Overlay – subdivision**

1. Require applications for subdivision of sites that are identified within the Surface Fault Rupture Hazard Overlay – subdivision to identify and map a fault avoidance zone at a site-specific scale; and
2. provide for subdivision in the Surface Fault Rupture Hazard Overlay - subdivision, where any future allotments, buildings and infrastructure can be set back from any fault avoidance zone to mitigate the potential effects of fault rupture to an acceptable level; and
3. avoid subdivision in instances where future allotments, buildings and infrastructure cannot set back from any fault avoidance zone.

NH-P11**Surface Fault Rupture Hazard Overlay – activities and buildings**

Require applications for critical facilities, education facilities, retirement facilities and buildings containing hazardous substances within the Surface Fault Rupture Hazard Overlay – activities and buildings to demonstrate that:

1. the activity or building is setback from the fault to avoid damage associated with fault rupture; and
2. any potential effects of fault rupture are mitigated.

NH-P12 Liquefaction Assessment Overlay

Provide for subdivision in the Liquefaction Assessment Overlay where it can be demonstrated that the potential risk of liquefaction is mitigated to an acceptable level.

NH-P13 Wildfire – subdivision and land use

Ensure that subdivision and land use in areas where there is actual or potential risk to people and property from wildfire achieve appropriate setbacks and mitigate the risk to an acceptable level.

NH-P14 Other natural hazard awareness overlays

Encourage proposals for subdivision, use and development in a natural hazard awareness overlay to undertake an assessment of natural hazard risk and incorporate methods to reduce or mitigate the risk to an acceptable level.

Rules

Note: For certain activities, a resource consent may be required by rules in more than one chapter in the District Plan. Unless expressly stated otherwise by a rule, resource consent is required under each of those rules. The steps to determine the status of an activity are set out in the General Approach Chapter.

The Coastal Environment Chapter contains provisions relating to coastal hazards.

NH – FLOODING

Note: the requirement to identify high hazard areas currently only applies to the Canterbury region of the Waitaki District.

PERMITTED ACTIVITIES

NH-R1 Flood tolerant activities in all Flood Assessment Overlays		
All zones	Activity status: Permitted	Activity status when compliance is not achieved: Not Applicable

NH-R2 Buildings, structures and fences in the Otago Flood Assessment Overlay		
All zones	<p>Activity status: Permitted</p> <p>Where: PER-1 The building or structure is:</p> <ol style="list-style-type: none"> 1. a below ground swimming pool; or 2. a deck; or 3. an unenclosed building without a floor; or 4. a post and wire or post and rail fence; or 5. a fence that is not covered by PER-1 (4) and is designed and located not to impede or displace the flow of water during a flood event; or 6. a retaining wall designed and located not to impede or displace the flow of water during a flood event; or 7. a farm building in a Rural Zone that has an unsealed or permeable floor; <p>or</p>	<p>Activity status when compliance is not achieved: Restricted Discretionary</p> <p>Where: RDIS-1 Compliance is not achieved with any of PER-1, PER-2, PER-3 or PER-4</p> <p>Matters of discretion are restricted to:</p> <ol style="list-style-type: none"> 1. mitigation of flooding effects; and 2. floor levels; and 3. access, including safe egress from the site/building; and 4. risk to people, property and the environment during a flood event; and 5. effects on flooding/displacement of flood waters on or off site; and 6. effects of any proposed mitigation; and 7. the intended use of the building or structure; and

<p>PER-2 The building work is for the maintenance, repair or alteration of an existing building and does not increase the building footprint; or</p> <p>PER-3 Any building is not greater than 10m² in area and the cumulative area of additions does not exceed 20m² over a 10-year period; or</p> <p>PER-4 Maintenance and repair of structures for the purposes of flood and erosion protection undertaken by the Regional or District Council (refer INF-R2).</p> <p><i>Note: An engineering assessment from a suitably qualified and experienced engineer must be provided to WDC to confirm compliance with PER-1 (5) and (6).</i></p>	<p>8. any storage of hazardous substances.</p> <p><i>Note: Pursuant to section 88 of the Resource Management Act, any application made under this provision must contain a flood assessment prepared by a suitably qualified and experienced professional.</i></p>
--	--

NH-R3 Buildings, structures and fences in the Canterbury Flood Assessment Overlay		
All zones	<p>Activity status: Permitted</p> <p>Where: PER-1 The building or structure is:</p> <ol style="list-style-type: none"> 1. a below ground swimming pool; or 2. a deck; or 3. an unenclosed building without a floor; or 4. a post and wire or post and rail fence; or 5. a fence that is not covered by PER-1 (4) and is designed and located not to impede or displace the flow of water during a flood event; or 6. a retaining wall designed and located not to impede or displace the flow of water during a flood event; or 	<p>Activity status when compliance is not achieved: Restricted Discretionary</p> <p>Where: RDIS-1 Compliance is not achieved with PER-1 or PER-2; and</p> <p>RDIS-2 Compliance is not achieved with PER-3 or PER-4 and the building, structure or fence is not located in a High Hazard Area, as determined by a flood assessment prepared in accordance with NH-S1</p> <p>Matters of discretion are restricted to:</p> <ol style="list-style-type: none"> 1. mitigation of flooding effects; and 2. floor levels; and 3. access, including safe egress from the site/building; and

<p>7. a farm building in a Rural Zone that has an unsealed or permeable floor; or</p> <p>PER-2 Maintenance and repair of structures for the purposes of flood and erosion protection undertaken by the Regional or District Council; or</p> <p>PER-3 The building work is:</p> <ol style="list-style-type: none"> 1. for the maintenance, repair or alteration of an existing building; and 2. does not increase the building footprint; and 3. not located in a High Hazard Area as determined in a flood assessment prepared in accordance with NH-S1; or <p>PER-4</p> <ol style="list-style-type: none"> 1. any building is not greater than 10m² in area and the cumulative area of additions does not exceed 20m² over a 10-year period; and 2. is not located in a High Hazard Area as determined in a flood assessment prepared in accordance with NH-S1. <p><i>Note: An engineering assessment from either Canterbury Regional Council or a suitably qualified and experienced engineer must be provided to WDC to confirm compliance with PER-1 (5) and (6).</i></p>	<ol style="list-style-type: none"> 4. risk to people, property and the environment during a flood event; and 5. effects on flooding/displacement of flood waters on or off site; and 6. effects of any proposed mitigation; and 7. the intended use of the building or structure; and 8. any storage of hazardous substances. <p>Activity status when compliance is not achieved: Non-Complying</p> <p>Where: NC-1 Compliance is not achieved with RDIS-2</p> <p><i>Note: Pursuant to Section 88 of the Resource Management Act 1991, any application made under these NH-R3 must contain a flood assessment prepared in accordance with NH-S1.</i></p>
---	--

NH-R4 Buildings and structures in the Waitaki River Floodplain Assessment Overlay	
All zones	<p>Activity status: Permitted</p> <p>Where: PER-1 The building or structure is:</p> <ol style="list-style-type: none"> 1. a below ground swimming pool; or 2. a deck; or 3. an unenclosed building without a floor; or 4. a post and wire or post and rail fence; or 5. a fence that is not covered by PER-1 (4) and is designed and located not to impede or displace the flow of water during a flood event; or 6. a retaining wall designed and located not to impede or displace the flow of water during a flood event; or 7. a farm building in a Rural Zone that has an unsealed or permeable floor designed and located not to impede or displace the flow of water during a flood event; or <p>PER-2 The building work is for the maintenance, repair or alteration of an existing building and does not increase the building footprint; or</p> <p>PER-3 Maintenance and repair of structures for the purposes of flood protection undertaken by the Regional or District Council (refer INF-R2).</p> <p><i>Note: An engineering assessment from a suitably qualified and experienced engineer must be provided to Council to confirm compliance with PER-1 (5), (6) and (7).</i></p>
	<p>Activity status when compliance is not achieved: Restricted Discretionary</p> <p>Where: RDIS-1 Compliance is not achieved with PER-1, PER-2 or PER-3</p> <p>Matters of discretion are restricted to:</p> <ol style="list-style-type: none"> 1. mitigation of flooding effects; and 2. effects on flooding/displacement of flood waters on or off site; and 3. risk to people, property and the environment during a flood event; and 4. effects of any proposed mitigation; and 5. floor levels; and 6. access, including safe egress from the site/building; and 7. the intended use of the building or structure; and 8. any storage of hazardous substances. <p><i>Note: Pursuant to Section 88 of the Resource Management Act 1991, any application made under this provision must contain a flood assessment prepared by a suitably qualified and experienced professional.</i></p>

NH-R5 Earthworks in all Flood Assessment Overlays		
All zones	<p>Activity status: Permitted</p> <p>Where: PER-1</p> <ol style="list-style-type: none"> 1. the earthworks do not exceed 10m³ per year and more than 20m³ cumulatively in any 10 year period; and 2. the earthworks do not involve the filling of more than 200mm above natural ground level; and 3. the earthworks do not involve the cut of more than 500mm below natural ground level; or <p>PER-2 The earthworks relate to the maintenance and repair of flood and erosion protection undertaken by the Regional or District Council.</p>	<p>Activity status when compliance is not achieved: Restricted Discretionary</p> <p>Where: RDIS-1 Compliance is not achieved with PER-1 or PER-2</p> <p>Matters of discretion are restricted to:</p> <ol style="list-style-type: none"> 1. location, nature and scale of the earthworks; and 2. mitigation of flooding and drainage effects; and 3. effects on land stability, flooding, waterways and ground levels on and off site. <p><i>Note: Pursuant to Section 88 of the Resource Management Act 1991, any application made under this provision must contain a flood assessment prepared by a suitably qualified and experienced professional.</i></p>

RESTRICTED DISCRETIONARY ACTIVITIES

NH-R6 Flood vulnerable activities in all Flood Assessment Overlays		
All zones	<p>Activity status: Restricted Discretionary</p> <p>Where: RDIS-1 If the activity is located within the Canterbury region of the District, it is not located in a High Hazard Area as determined in a flood assessment prepared in accordance with NH-S1.</p> <p>Matters of discretion are restricted to:</p> <ol style="list-style-type: none"> 1. mitigation of flooding effects; and 2. floor levels, including alternative means of complying with any floor 	<p>Activity status when compliance is not achieved: Non-Complying</p> <p>Where: NC-1 Compliance is not achieved with RDIS-1</p>

<p>level specified in a flood assessment; and</p> <ol style="list-style-type: none"> 3. methods to manage the activity and people during a flood event; and 4. access, including safe egress from the site/building; and 5. the nature of the activity and the risk and vulnerability to flood events. <p><i>Note: Pursuant to Section 88 of the Resource Management Act 1991, any application made under this provision must provide, in addition to the standard information requirements, a flood assessment prepared in accordance with NH-S1.</i></p>	
---	--

NH-R7 Activities in all Flood Assessment Overlays except flood tolerant activities and flood vulnerable activities		
All zones	<p>Activity status: Restricted Discretionary</p> <p>Where: RDIS-1 If the activity is located within the Canterbury region of the District and not located in a High Hazard Area as determined in a flood assessment prepared in accordance with NH-S1.</p> <p>Matters of discretion are restricted to:</p> <ol style="list-style-type: none"> 1. mitigation of flooding effects; and 2. floor levels, including alternative means of complying with any floor level specified in a flood assessment; and 3. methods to manage the activity and people during a flood event; and 4. access, including safe egress from the site/building; and 5. the nature of the activity and the risk and vulnerability to flood events; and 6. any storage of hazardous substances. 	<p>Activity status when compliance is not achieved: Non-Complying</p> <p>Where: NC-1 Compliance is not achieved with RDIS-1</p>

	<p><i>Note: Pursuant to Section 88 of the Resource Management Act 1991, any application made under this provision must contain a flood assessment prepared in accordance with NH-S1.</i></p>	
--	--	--

NH FLOODING STANDARDS – CANTERBURY REGION

NH-S1	Flood assessment
<p>Within the Canterbury Flood Assessment Overlay;</p> <p>A flood assessment shall be provided by Canterbury Regional Council, or a suitably qualified and experienced professional, which specifies whether or not the activity is located on land that is within a High Hazard Area.</p> <p>The flood assessment will be completed with reference to:</p> <ol style="list-style-type: none"> 1. the most up to date models and maps held by Waitaki District Council or Canterbury Regional Council; and 2. any relevant field information. 	<p>Activity status when compliance is not achieved: Non-Complying</p>

NH – LAND INSTABILITY

PERMITTED ACTIVITIES

NH-R8 Buildings, structures (including additions and alterations) in the Moeraki Land Instability Overlay – Very Low and Low Risk Areas		
All zones	<p>Activity status: Permitted</p> <p>Where: PER-1 An engineering assessment from a suitably qualified and experienced engineer is provided to WDC to confirm that there are no indicators of slope instability.</p> <p><i>Note: Where a building or structure is constructed in accordance with any geotechnical conditions of a resource consent that has already been approved within the last two years, then this rule can be considered to be complied with.</i></p>	<p>Activity status when compliance is not achieved: Restricted Discretionary</p> <p>Where: RDIS-1 Compliance is not achieved with PER-1</p> <p>Matters of discretion are restricted to:</p> <ol style="list-style-type: none"> 1. potential risk to people, property and the environment; and 2. any mitigation measures proposed; and 3. effects of any mitigation measures; and 4. suitability of any infrastructure to withstand any slope movement.
NH-R9 Earthworks in the Moeraki Land Instability Overlay – Very Low Risk and Low Risk Areas		
All zones	<p>Activity status: Permitted</p> <p>Where: PER-1 The quantity of earthworks does not exceed:</p> <ol style="list-style-type: none"> 1. 300m² in any 12 month period per site in the Settlement Zone; or 2. 500m² in any 12 month period per site in the General Rural Zone; and <p>PER-2 The volume of earthworks does not exceed 10m³ per 100m²; and</p> <p>PER-3 1. the cut batter gradient shall not exceed 1.5:1 (horizontal: vertical); and</p>	<p>Activity status when compliance is not achieved: Restricted Discretionary</p> <p>Where: RDIS-1 Compliance is not achieved with PER-1, PER-2 or PER-3</p> <p>Matters of discretion are restricted to:</p> <ol style="list-style-type: none"> 1. potential risk to people, property and the environment; and 2. any mitigation measures proposed; and 3. effects of any mitigation measures; and 4. suitability of any infrastructure to withstand any slope movement.

	<ol style="list-style-type: none"> 2. the fill batter gradient shall not exceed 2:1 (horizontal: vertical); and 3. the crest of any cut shall be set back at least 300mm from the boundary; and 4. the toe of any fill shall be set back from the boundary by at least the depth of the fill. 	
--	--	--

DISCRETIONARY ACTIVITIES

NH-R10 Buildings, structures (including additions and alterations) in the Moeraki Land Instability Overlay – Moderate		
All zones	Activity status: Discretionary <i>Note: Pursuant to Section 88 of the Resource Management Act, any application made under this rule must be accompanied by a geotechnical report that demonstrates the appropriateness of the site for the proposed development.</i>	Activity status when compliance is not achieved: Not Applicable

NH-R11 Earthworks in the Moeraki Land Instability Overlay – Moderate, High and Very High Risk Areas		
All zones	Activity status: Discretionary <i>Note: Pursuant to Section 88 of the Resource Management Act, any application made under this rule must be accompanied by a geotechnical report that demonstrates the appropriateness of the site for the proposed development.</i>	Activity status when compliance is not achieved: Not Applicable

NON-COMPLYING ACTIVITIES

NH-R12 Buildings, structures (including additions and alterations) in the Moeraki Land Instability Overlay – High-Risk Area and Very High-Risk Area		
All zones	<p>Activity status: Non-Complying</p> <p><i>Note: Pursuant to Section 88 of the Resource Management Act, any application made under this rule must be accompanied by a geotechnical report that demonstrates the appropriateness of the site for the proposed development.</i></p>	<p>Activity status when compliance is not achieved: Not Applicable</p>

NH – FAULT HAZARD

DISCRETIONARY ACTIVITIES

NH-R13 Surface Fault Rupture Hazard Overlay – critical facilities		
All zones	<p>Activity status: Discretionary</p> <p><i>Note: Pursuant to Section 88 of the Resource Management Act, any application made under this rule must be accompanied by a detailed fault investigation, prepared by a suitably qualified professional, which sets out the results of a site-specific investigation undertaken, including detailed fault mapping and assessment of its average recurrence interval. The investigation report must also be supplied to Canterbury Regional Council.</i></p>	<p>Activity status when compliance is not achieved: Not Applicable</p>

NH – WILDFIRE

PERMITTED ACTIVITIES

NH-R14 Wildfire – buildings, woodlots and shelterbelts	
<p>General Rural Zone</p>	<p>Activity status: Permitted</p> <p>Where: PER-1 The woodlot or shelterbelt is no wider than 30m and is setback (measured from the outside extent of the canopy):</p> <ol style="list-style-type: none"> 1. 30m from any residential unit or other principal building on an adjoining property; and 2. 30m from any zone that is not a rural zone; and 3. 5m from any adjoining legally established accessway to a residential unit or other principal building. <p>PER-2</p> <ol style="list-style-type: none"> 1. The residential unit or principal building is setback 30m from from the outside extent of the canopy of any woodlot or shelterbelt. <p><i>Note: Discussion with Fire and Emergency New Zealand (FENZ) should be undertaken to determine specific steps to manage fire risk and maintain an effective fire break or setback.</i></p>
	<p>Activity status when compliance is not achieved: Restricted Discretionary</p> <p>Where: RDIS-1 Compliance is not achieved with PER-1 or PER-2</p> <p>Matters of discretion are restricted to:</p> <ol style="list-style-type: none"> 1. potential risk to people, property and the environment; and 2. the extent to which any vegetation required for visual screening of a principal building affects the wildfire risk to any residential unit or other principal building; and 3. any mitigation measures proposed.