Natural Hazards (NH)

Amended to comply with National Planning Standards September 2022

Issues

High incidences of flooding and ponding threaten parts of the District.

Areas of coastal development are threatened by a variety of coastal hazards, including uncertainty of sea level rise and the effects of tropical storms.

The risk of fire is an issue in the District, particularly to stands of either native bush and grasslands or forestry, and within areas of residential development that are located in close proximity to stands of forestry and other fire-prone areas.

Inappropriately located activities and development increase the likelihood of significant property damage from natural hazard events.

Areas of land instability can pose a significant threat to development and subdivision.

Risks from natural hazards include land instability, flooding, coastal hazards and fire. The Plan must have regard to these hazards and the threat to human health and safety, and property. Drought is a natural hazard that is common in the District, but the management of this hazard is not best achieved through the Plan.

Generally, where there are steep slopes, little vegetation and high rainfall, land is likely to be subject to erosion and movement. Some land formations, including caves and sinkholes, are inherently unstable and constitute a major hazard. Land instability issues also arise from inappropriate earthwork activities and the removal of vegetative cover. Control of land use and development, in relation to areas of unstable land, has been left to the statutory controls within the Resource Management Act 1991 and the Building Act 2004.

Coal mining was formerly a major industry in Northland with over five million tonnes extracted. Major coalfields were located at Kamo and Hikurangi which are now urbanised. Hazards such as subsidence and sink hole formation arise from the existence of old mines. Potential development in these areas is constrained by these possible hazards. Areas of cut and fill also present a hazard risk where the fill may be unstable and therefore unsuitable for use and development. Potential erosion and land instability hazards present a number of issues that require attention, as the effects of these processes not only result in property damage and risk to human health and safety, but can also affect water quality, natural functioning of water bodies and sediment control.

The high rainfall intensities and the occurrence of tropical storms in the District expose many areas to flooding hazards. There are obvious floodway areas plus areas that are susceptible to ponding. Traditional residential development has centred around the alluvial plains and the coastal foreshore, where the probability of flooding or ponding is high.

Coastal hazards pose a significant threat to a high number of communities in the District. Coastal erosion, landslip and flooding from the sea are the dominant natural coastal hazards along both sheltered and open-exposed coasts.

Coastal erosion exists as either a long-term trend or a significant short-term shoreline fluctuation, especially on sand dune-backed coasts. Landslip is directly associated with coastal erosion where the coastal geology is relatively weak and prone to slope failure.

Flooding from the sea occurs from either severe coastal storms or tsunami that result in waves overtopping the coast and temporarily flooding low-lying coastal hinterland. The identified coastal

hazards are forecast to be increased by the effects of climate change from an enhanced greenhouse effect, including rising sea levels at rates generally exceeding those of the last 6,500 years.

Coastal land that is, or is likely to be, subject to the effects of the identified coastal hazards over planning horizons of 50 to 100 years, (adopted widely for hazard assessment) is identified on the Planning Maps by Coastal Hazard Areas 1 and 2 lines, respectively. The Coastal Hazard Areas were first identified in 1988 by the Northland Regional Council but the area of these zones has been reviewed and updated in 1998 and 1999.

Traditional methods of foreshore stabilisation may, in fact, exacerbate, not mitigate, the impact of these coastal hazards. Policy 3.4.5 of the New Zealand Coastal Policy Statement 1994 (NZCPS) requires that new subdivision, use and development near the coast should be so located and designed that the need for hazard protection is avoided. The intent of this policy is to avoid having to implement hazard protection, and should guide where subdivision use and development is appropriate.

Policy 3.3.1 of the New Zealand Coastal Policy Statement requires that a precautionary approach is adopted towards activities involving the subdivision, use or development of areas of the coastal environment. The Objectives and Policies of this part of the District Plan reflect this requirement.

The warming of the earth's surface and atmosphere, caused by increases in greenhouse gases is predicted to result in a rise in sea level, higher local temperatures and changes in rainfall patterns and 'storminess'. The New Zealand Coastal Policy Statement Policies 3.4.2 and 3.4.4 state that plans must recognise the effects of possible sea level rise and that there are natural defence systems within the coastal environment that will mitigate the associated environmental effects. Subdivision, use and development will be discouraged from locating in areas that form natural defence systems. A copy of the NZCPS is available at Whangārei District Council's offices for perusal by the public.

Scrub and bush fires are a potential hazard. Grassland, dune lands, stands of native bush and exotic forestry blocks are included in the areas considered to be at risk, as is residential development where it is in close proximity to such areas.

There is a risk of volcanic activity in Northland, but because of the difficulty of defining exactly where and when an eruption will occur, it is not practicable to provide for hazard avoidance in the District Plan. A risk of damage from earthquakes also exists but is provided for by the building standards required by the Building Act 2004.

This Chapter contains rules relating to land uses in areas mapped as hazard areas. These areas are shown on the Planning Maps by shading on the Resource Area Maps. These rules apply in addition to any other rules in this Plan applicable to the same areas or sites. In addition, Council's *"Policy for Application of Section 36(2) of the Building Act 1991*[1]*"* will apply to all areas mapped as hazard areas, particularly to Coastal Hazard Areas.

The Planning Maps identify land which, on the information currently available, is susceptible to flooding; either due to rivers or streams overflowing their banks, inundation from the sea during high tides or storm surges, or to water ponding during extended periods of wet weather. Due to the scale of the mapping, there will be some areas within the identified land that are less prone, or not prone, to flooding, just as outside the identified flood-prone land there will be land which is subject to flooding.

1 Now superseded by Section 72 of the Building Act 2004

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Coastal hazard reports prepared for Northland Regional Council and Whangarei District Council from 1988 onwards have been used as information sources to assess Coastal Hazard Areas. A list of these information sources is detailed below. Copies of these references are available from the Council.

The Council is conscious of the need to improve the quality of the natural hazards information and will be carrying out the appropriate research and analysis as resources permit. For example there is a programme to prepare Catchment Drainage Plans for all significant areas of development in the District. People who wish to carry out development in an area identified on the Resource Maps as being subject to natural hazards, should check with the Council to see whether there is any more detailed or up-to-date information relating to the property in question.

The coastal hazard information included on the Resource Maps of this Plan is derived from the following Coastal hazard information sources:

- NRC 1988: *Coastal Hazard Identification. Whangarei County*. Technical Publication No.1988/1, March 1988, held by Northland Regional Council.
- Gibb, J.G. 1998a: *Review of Coastal Hazard Zones for Eleven Selected Beaches in Whangarei District, Northland Region.* Consultancy Report C.R. 98/4 prepared for and held by Northland Regional Council. July 1998.
- Gibb, J.G. 1998b: *Coastal Hazard Zone Assessment for the One Tree Point-Marsden Bay Area, Whangarei Harbour, Whangarei District.* Consultancy Report C.R. 98/3 prepared for and held by Whangarei District Council.
- Gibb, J.G. 1999: *Coastal Hazard Risk Zone Assessment for Pataua and Matapouri Bay, Whangarei District.* Consultancy Report C.R. 99/7 prepared for and held by Whangarei District Council. December 1999.
- IPCC 1996: *Climate Change 1995. The Science of Climate Change. Summary for Policy Makers and Technical Summary of the Working Group 1*. Report. Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge. Held by Northland Regional Council.

Reasons for Rules / Explanations

Coastal Hazards

Short-term coastal erosion occurs because of storm events such as high winds, waves and increased water levels along the coastal foreshore. Coastal flooding is an associated natural hazard. Coastal Hazard Areas prone to coastal erosion and flooding are shown on the Planning Maps. These coastal hazards can present a serious risk to human life and physical structures. A potential rise in sea level will exacerbate these hazards. By ensuring that the floor levels of structures and buildings are at least 2.5m above One Tree Point Datum Mean Sea Level 1964, this risk will be significantly reduced. Natural processes and features such as coastal dunes and mangroves can provide some defence against coastal hazards and this protection should be maintained and enhanced where possible.

Earthworks

Earthworks in coastal dunes can reduce the protection these natural systems provide against coastal hazards. Earthworks also make the dunes very unstable, thus causing a new hazard to emerge. Re-vegetation will help protect the dunes and thus protect the properties behind them.

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Flooding

The Flood Susceptible Areas identified on the Planning Maps identify flooding from river systems, potential overland flow and low-lying areas which have experienced, or could be subject to, flooding under conditions such as poor drainage. The controls in the Plan are intended to reduce the risk from flooding by requiring the flood risk to be assessed when undertaking any activity such as building or forming an access to an allotment or building. There is also a perceived risk to human safety to those traversing such an access during peak flood periods.

The assessment of flood susceptibility in plantation forestry areas may be included as part of the Annual Harvesting Plans, prepared as a requirement of resource consents granted by the Northland Regional Council.

Mining Subsidence

The areas subject to possible mining subsidence are identified on the Planning Maps. A network of tunnels exists in the residential areas of Kamo and Hikurangi. The risk to properties situated above these old coal mining tunnels, and to human life, can be minimised by ensuring that any earthworks or structure is suitable and does not increase the likelihood of subsidence. This can be achieved by controlling the design and building materials of structures that are built in these areas.

Objectives	
NH-O1 – Adverse Effects of Natural Hazards	The adverse effects of natural hazards on people, property and the environment are avoided, as far as practicable, or otherwise remedied or mitigated.
NH-O2 – Existing Natural Buffers	Existing natural buffers against natural hazard effects are protected, maintained and enhanced. *Explanation and Reasons: Natural hazards can rarely be fully understood or controlled by humans. The avoidance and mitigation of the effects of natural hazards are the better management approaches, with avoidance being preferred to reduce the risk to property and the health and safety of people. Natural buffers against natural hazards, such as coastal dunes, need to be protected so as to maintain their ability to protect people and property from natural hazards.* *Note that coastal hazards exist only when activities occur too close to the active coastal zone, remove natural defence systems (such as the dunes) and interfere with natural and physical processes.* *The commentary to Policy 3.4.3 of the New Zealand Coastal Policy Statement states that "the obligation to 'enhance' is directed at developers not at local authorities in their regulatory capacity. Local authorities can ensure such enhancement through conditions attached to resource consents".*

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Policies	
NH-P1 – Natural Hazard Effects	To ensure that subdivision, use and development do not increase the risk from, occurrence of, or the adverse effects of natural hazards. *Explanation and Reasons: Certain uses and development may initiate or intensify the adverse effects of natural hazards on the site and beyond. The activity will be restricted if the effects cannot be mitigated to an acceptable level. This will be assessed on a case-by-case basis.*
NH-P2 – Location of Activities	To avoid subdivision, use and development in identified natural hazard areas where the natural hazard is likely to impact adversely upon human health and safety, property and infrastructure. *Explanation and Reasons: The difficulty of managing the adverse effects of natural hazards highlights the need to avoid development in identified-hazard prone areas where substantial potential risk to human life exists. If mitigation of the natural hazard can be proved to reduce the potential risk to human health and safety to an acceptable level, activities will be considered. Natural hazards have the potential to cause damage, by a range of degrees, to property and infrastructure. Activities may be acceptable if mitigation of the natural hazard reduces risk to human life and property to an acceptable level. This will be assessed on a case-by-case basis.*
NH-P3 – Natural Protection	To ensure that existing natural processes and features, such as sea cliffs, beaches, coastal dune systems and vegetation, which provide a buffer against natural hazards, are recognised, protected and enhanced in order to maintain their functioning and integrity. *Explanation and Reasons: Natural processes, such as coastal erosion, can involve such powerful forces that human intervention is futile. There should be protection of existing natural processes and features that have the potential to minimise the effects of natural hazards.*
NH-P4 – Sea Level Rise	To ensure that all buildings or structures in the coastal environment should be located so as to avoid the effects of a forecast 50cm rise in global sea level this century. *Explanations and Reasons: A rise in global sea level of about 50cm by the year 2100, as forecast by the Intergovernmental Panel on Climate Change (1996), will exacerbate both erosion and flooding from the sea, providing a cumulative threat to buildings or structures situated within close proximity to the sea. The policy adopts a precautionary approach to this hazard by ensuring that sea level rise is considered for all development in close proximity to the sea.*
NH-P5 – Coastal Hazards	To avoid the need to implement hazard protection works when locating new subdivision, use and development in the coastal environment.

	Explanation and Reasons: In many instances, the use of coastal hazard protection works is futile and does not achieve acceptable environmental outcomes. Effective hazard management would be to avoid the hazard. In the coastal environment this can usually be achieved easily by setting back subdivision and development from the beach, thus allowing natural processes to continue without endangering people and property.
NH-P6 – Mitigation Measures	To ensure that mitigation measures in response to natural hazards do not, themselves, produce adverse effects on the environment and are designed and located to achieve their purpose. *Explanation and Reasons: Engineering measures used to limit the effects of natural hazards might themselves cause adverse effects. An example within the District includes the filling of low-lying land to lessen the risk of flooding. This can change water flow patterns and simply transfer the hazard elsewhere. Due to these factors, any mitigation measures will be assessed for their impacts on the overall environment, rather than merely on a site-specific basis.*
NH-P7 – Flood Flow Paths	To ensure that subdivision, use and development does not obstruct the flood flow paths of rivers and the efficient functioning of natural drainage systems. *Explanation and Reasons: Activities located in the flood paths of rivers and streams have the potential to interfere with the flow of floodwater. This may increase the adverse effects of the flooding upon human health and safety, property and infrastructure.*
NH-P8 – Fire Threat	To ensure that subdivision, use and development in areas where there is a high actual or potential risk of fire, incorporate measures to avoid or mitigate such risk. *Explanation and Reasons: Fire is a significant natural hazard. In some areas, such as forests and coastal grasslands and shrub lands, the risk of fire is higher than in other areas. In high-risk areas the avoidance or mitigation of risk can be achieved through measures such as the creation of firebreaks, provision of adequate on-site water supply or careful choice of building materials.*

Rules

NH-R1	Any Activity Not Otherwise Listed in This Chapter
	Activity Status: Permitted Where: 1. Resource consent is not required under any rule of the District Plan. 2. The activity is not prohibited under any rule of the District Plan.

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NH-R2	Coastal Hazards	
	Activity Status: Permitted Where: 1. Construction or alteration of a building or structure in a Coastal Hazard Area is permitted if: a. It does not occur in Coastal Hazard Area 1; and b. All buildings and major structures (excluding minor structures) within Coastal Hazard Areas have a minimum floor level of 2.5m above One Tree Point Datum Mean Sea Level 1964.	Activity Status when compliance not achieved: Discretionary

NH-R3	Earthworks	
	Activity Status: Permitted Where: 1. Earthworks, gardening or cultivation upon sand dune complexes are a permitted activity if: a. Such earthworks, gardening or cultivation do not occur in Coastal Hazard Area 1; and b. In Coastal Hazard Area 2, the earthworks do not exceed a volume of 25.0m^3 or an area of 150.0m^2, and all sand displaced by such works is returned to the dune complex immediately; and c. The site of the earthworks, gardening or cultivation which will not be covered by buildings or structures is immediately stabilised by appropriate dune binding vegetation within 10 working days of such earthworks being completed.	Activity Status when compliance not achieved: Discretionary

NH-R4	Flooding	
	Activity Status: Permitted Where: 1. Construction or alteration (excluding internal modifications) of a building or major structure	Activity Status when compliance not achieved: Restricted Discretionary Matters of discretion:

	(excluding minor buildings), construction of vehicular access to a building or allotment, or earthworks, gardening or cultivation in a Flood Susceptible Area, is a permitted activity if: a. A report or certificate from a suitable qualified and experienced professional is provided to the Whangarei District Council which indicates that the activity is designed to accommodate the flood hazard and will not create any adverse effects upstream or downstream nor endanger human life; or b. The work involved is maintenance of an existing building. *Note:* 1. *Reference may be made to previous reports relating to the flood susceptibility of the area.*	1. Construction or alteration of a building in relation to its location; 2. The avoidance, remediation or mitigation of coastal hazards.

NH-R5	Mining Subsidence	
	Activity Status: Permitted Where: 1. Construction or alteration (excluding internal modifications) of a building or major structure (excluding minor buildings) earthworks, gardening or cultivation within a Mining Hazard Area is a permitted activity if: a. A geotechnical survey of the ground under, and in the immediate vicinity of the site, is undertaken, and b. A report or certificate, which has been prepared by a suitable qualified and experienced professional, is provided to the Council which indicates that: i. Where the site is to accommodate a residential unit, there is an identified building area of at least 100m^2 where a residential unit can be built so that there is compliance as a permitted activity with the rules in this plan; and ii. The site is suitable for the activity or structure; and	Activity Status when compliance not achieved: Restricted Discretionary Matters of discretion: 1. Construction standards; 2. Effects on health and safety.

	iii. The structure is of an appropriate design and the building materials are appropriate in the circumstances; and c. The risk of subsidence is not increased by the construction, alteration or excavation.

Methods

Regulatory Methods

Identification of Natural Hazard Areas on the Planning Maps. These include:

- Flood Susceptible Areas (NH-P7).
- Mining Hazard Areas (NH-P1).
- Coastal Hazard Area 1 (NH-P5).
- Coastal Hazard Area 2 (NH-P5).
- Subdivision rules relating to ability to subdivide in natural hazard areas (NH-P1).
- Resource Area rules relating to activities in natural hazard areas (NH-P1).
- Resource consent conditions (NH-P1 to NH-P8).
- Investigate options for minimising flood damage (NH-P7).
- Prepare and distribute publicity material related to hazard investigations and related monitoring systems (NH-P1 to NH-P8).
- In association with the Northland Regional Council, review flood control schemes and investigate options for improved flood control (NH-P6 and NH-P7).

Other Plans and Legislation

- The Northland Regional Water and Soil Plan (NH-P1 to NH-P8).
- The Building Act 2004 (NH-P1).
- The New Zealand Coastal Policy Statement (NH-P1 to NH-P8).
- The Regional Policy Statement for Northland (NH-P1 to NH-P8).
- The Northland Regional Coastal Plan (NH-P1 to NH-P8).

Information, Education and Advocacy

- Liaison with the Northland Regional Council (NH-P1 to NH-P8).
- Develop a natural hazard events' register (NH-P2).
- Educate and inform resource users about areas with known flooding, instability and other natural hazard-related problems, and the systems in place to monitor these natural hazards (NH-P2 and NH-P6).
- Educate and inform resource users about climate change and sea level rise as new information is made available (NH-P4).
- Provide guidelines on structural and non-structural mitigation measures (NH-P6).

- Investigate options for minimising flood damage (NH-P7).
- Prepare and distribute publicity material related to hazard investigations and related monitoring systems (NH-P1 to NH-P8).
- Develop maps showing areas of elevated rural fire risk resulting from factors other than weather (NH-P8).
- Maintain maps identifying natural hazard risk areas on Council's Geographic Information System (NH-P1).

Council Works and Services

- Works and services relating to maintaining existing Council-owned protection works (NH-P6).
- Catchment Drainage Plans (NH-P7).

Anticipated Environmental Results

The following results are expected to be achieved by the foregoing Objectives, Policies and Methods. The means of monitoring whether the Plan achieves the expected outcomes are set out in the Whangārei District Council Monitoring Strategy.

- Natural hazard areas are identified, assessed, classified and shown on the planning maps in the District Plan.
- Subdivision, use and development is avoided in identified natural hazard areas and/or the adverse effects from natural hazards are adequately avoided, remedied or mitigated.
- The adverse effects from natural hazards on the environment, people's health and safety and property are avoided, as far as practicable, or otherwise remedied or mitigated.
- Natural buffers relating to natural hazards are protected, maintained or enhanced.