

PART 7 NATURAL HAZARDS

The Franklin District is exposed to a range of natural hazards. Some of these hazards have a low frequency of occurrence but can have severe consequences such as earthquakes, volcanic eruptions, cyclones and tsunamis. Other hazards occur more frequently, such as flooding, land instability and coastal erosion and for these, there is an improving local knowledge of how the effects of the hazards can be avoided, remedied or mitigated.

Three key statutes guide Council in the management of natural hazards:

- **Resource Management Act 1991** : One of the Council's functions under Section 31 of the Act is:

"The control of any actual or potential effects of the use, development, or protection of land, including for the purpose of the avoidance or mitigation of natural hazards."
- **Building Act 2004**: Council is required, under Section 71 of the Building Act, to refuse building consent if the land on which the building work is to be carried out is subject to, or is likely to be subject to, one or more natural hazards; or the building work is likely to accelerate, exacerbate, or result in a natural hazard on that land or any other property, unless provision can be made to protect the land, building work, or other property, or restore any damage to that land or other property as a result of the building work.
- **Civil Defence Emergency Management Act 2002**: Council is required to plan and provide for civil defence emergency management within its district, across the areas of reduction, readiness, response, and recovery. Ensuring local authorities plan and provide for readiness, response and recovery from hazard events ensures that the less frequently occurring natural hazards can be dealt with through contingency controls such as civil defence and insurance systems.

Auckland Regional Council and Environment Waikato also have legislative obligations for the management and control of natural hazards. It is important that the roles and responsibilities of the Regional Councils and this Council (and its successors with the roles of territorial local authorities) are clear, to avoid duplication and inefficiencies.

The Council is responsible for the control of any actual or potential effects of the use, development, or protection of land, including land used for the avoidance or mitigation of natural hazards, providing hazard information for specific sites through Land Information Memorandums and Project Information Memorandums, carrying out infrastructure maintenance, implementing relevant hazard mitigation plans, and working in partnership with other territorial authorities to coordinate planning, response, and recovery to civil defence emergencies. The Council is primarily responsible for gathering information and implementing objectives, policies and rules for hazards at a district scale. This includes flooding, land instability, and coastal hazards.

The Auckland Regional Council and Environment Waikato are responsible for controlling any actual or potential effects of land use for the avoidance and mitigation of natural hazards in the coastal marine area and the beds of lakes and rivers, maintaining and carrying out public flood protection, land drainage and erosion control works, developing mitigation plans for regionally significant hazards, and working in partnership with other territorial authorities to coordinate planning, response and recovery to civil defence emergencies. The Auckland Regional Council and Environment Waikato are primarily responsible for gathering information and implementing objectives, policies, and rules for hazards at a regional scale. This includes volcanic eruption, tsunamis, earthquake, cyclone, and coastal erosion.

7.1 TYPES OF HAZARD

The main types of hazard within Franklin District are summarised as follows:

7.1.1 INUNDATION

A number of areas within the District have been identified as being subject to flooding. Low-lying parts of the District adjoining the Waikato River and its tributaries have been subject to regular and significant flooding. Low-lying areas of the Waikato River Estuary at Port Waikato are also subject to potential coastal flooding.

Rural areas such as land surrounding the Mangatawhiri and Mangatangi Rivers, Maketu and the Bells Road, Mangatawhiri, Motukaraka and Tuakau Swamp Drainage Districts have also been identified as being subject to flooding.

In urban areas, Pukekohe West, Massey Park and Rossiter Avenue/Valley Road areas in Waiuku and the rural settlement of Buckland also have issues of inundation.

In addition, coastal flooding is a potential issue for most low-lying coastal areas in the District, affecting settlements such as Big Bay, Glenbrook Beach and Hudson's Beach. The Kaiua-Miranda lowlands, including the internationally important Chenier Plain, located on the Seabird Coast are particularly vulnerable to serious coastal flooding during extreme storms. In the longer term, the potential for coastal flooding in all these areas is likely to be exacerbated by sea level rise.

Note: ponding can occur throughout the District on a site by site basis.

7.1.2 COASTAL EROSION

The District has an extensive coastline, much of which is subject to naturally occurring processes of erosion. However, Franklin's coastline comprises a number of quite distinct environments subject to distinct coastal processes. As a result, coastal erosion processes affect these environments in different ways and to varying extents. Physiographically, the coast of Franklin District can be defined by three areas being the Tasman Coast, the Manukau Harbour Fringe and the Sea Bird Coast.

The Tasman Coast

The sandy areas of the Tasman Coast Management Area are particularly exposed and subject to winds. Wind erosion and consequent sand drift can be exacerbated once vegetation is disturbed. Historically, mobile sand drifts have extended considerable distances inland, even from the top of the coastal escarpment. While there have been only limited investigations of coastal erosion along the west coast, it is clear that sandy areas are potentially vulnerable to major shoreline changes over periods of several decades or longer.

The most notable example of this is the Port Waikato spit – which has grown significantly northwards over the last 150 years. Over periods of centuries, it is likely that this feature fluctuates back and forth in response to river entrance changes. The potential for future serious erosion of this spit is such that no future subdivision of this feature is desirable. Historical reports also suggest very significant erosion on the immediate southern side of the Manukau Harbour (top end of Awhitu Peninsula). Landform regression has been recorded as approximately 100 metres over the last 150 years, an average of 0.6 metres per year. However, the erosion of the coastline has been punctuated by significant escarpment and cliff failures with land on the landward side of the escarpment and ridgelines slipping into the sea or down the cliffs. Evidence suggests that the extent of the instability hazards could extend landward of the exposed sandy areas to include areas of pasture and farm land.

District Plan Approach

All sandy areas, escarpment faces and potentially unstable cliff margins in these areas should be avoided for future subdivision unless future detailed site-specific investigations indicate that area is stable enough for development. Generally, subdivision and development proposals in the Tasman Coast Management Area should be supported by site specific investigations to determine the extent of risk from instability and erosion.

The Manukau Harbour Fringe

There is very little quantitative information on the rate and scale of coastal erosion around the Manukau Harbour, though some site-specific information is available (e.g. Gibb, 1991; Betts, 1992; Coastline Consultants, 2001a, 2001b). It appears that some beaches can experience quite significant erosion over long periods of time – changes of 20-30m being recorded over periods of several decades at some sites (Gibb, 1991; Coastline Consultants, 2001b). Cliff erosion and slumping has been a management issue at some sites such as Clarks Beach and the southern end of Glenbrook Beach.

Erosion problems at some existing settlements have also led to the placement of erosion protection works, which have seriously degraded natural character, amenity values and public access along the coast at many sites. These adverse impacts are incompatible with relevant statutory provisions and the use of hard engineering structures to manage coastal erosion is becoming increasingly unacceptable to relevant consenting agencies.

District Plan Approach

Therefore, in order to avoid erosion hazard problems and adverse impacts on coastal values, future subdivision and development around the Manukau Harbour will need to allow a sufficient buffer zone to accommodate natural shoreline movements and erosion without the need for engineering structures. A precautionary approach is required in establishing erosion hazard setbacks on Manukau beaches. In general, a relatively wide development setback is appropriate.

The Seabird Coast

Coastal erosion affects the entire length of the Seabird Coast but varies from site to site – probably being most severe in southern areas, near stream entrances and/or where there is localised sand extraction. Available information indicates that erosion can be significant in places along the shoreline of the Chenier Plain, particularly where Chenier Ridges are still migrating landward in response to wave overwash. Historically, it appears that significant, localised erosion (rates of up to 1- 2 m/yr) has also been experienced in response to sand extraction.

Potential problems have been significantly increased whereby development has occurred or infrastructure such as roading has been placed too close to the sea to accommodate natural shoreline movements. As a result, the natural character and amenity values of the coast have been devalued by shoreline armouring structures.

District Plan Approach

Future planning should give consideration to the landward relocation of the road – especially in those areas where it is less than 50m from the sea. Estimation of the hazard risk area at any particular locality will require site-specific assessments.

In the longer term, it is probable that coastal erosion of all Franklin's coastal areas will be aggravated by sea level rise. Present best estimates suggest that mean sea level may rise by 0.3-0.5m over the next 100 years.

In the past the rural areas of Franklin were subject to a Coastal Protection Yard. In the former Franklin County District Scheme this was 60 metres from mean high water springs and in the former Raglan County Scheme it was 100 metres.

While not based on any known methodology, these coastal protection yards have been effective in mitigating the effects of erosion. They have also served the purpose of maintaining the natural character of the coastline. However, it is important to recognise that in order to manage coastal erosion effectively, different management strategies are required to address Franklin's varied coastal environments.

District Plan Approach

As a result, the District Plan adopts three coastal management areas, namely Tasman Coast Management Area, Manukau Harbour Fringe Management Area and Seabird Coast Management Area. These coastal management areas are outlined in Part 17.2. Management areas provide the opportunity to devise objectives, policies and outcomes specific to each Management Area. This enables the coastal areas to be managed in terms of the different issues facing coastal hazards in each of these areas.

Underlying the coastal management areas are two zones, namely Coastal Zone and Village Zone, to which rules regarding landuse and subdivision opportunities apply. Within the Coastal Zone, the District Plan adopts a different COASTAL PROTECTION SETBACK for each Coastal Management Area to provide for the preservation of the natural character of each area and to best ensure the avoidance and mitigation of coastal hazards in those areas. Protection from coastal erosion is also provided within the Village Zone specifically for a BUILDING and EARTHWORKS by way of a defined SETBACK from water in relation to the mean high water springs.

7.1.3 INSTABILITY

Areas of land at Waharau are known to be of an unstable nature. Over recent years the Council has declined to issue building permits for dwellings on this land. There may be other large areas of unstable land in the District requiring special consideration.

Some areas within the Hunua ranges and steeper country south of the Waikato River are subject to erosion. Clearing of native bush in these areas should be avoided particularly near water courses and on steep slopes.

Particular properties may also have been filled and have potentially poor foundation bearing qualities, placing them at risk from subsidence or slippage.

7.1.4 OTHER HAZARDS

Other hazards include earthquakes, volcanism, tsunamis, various meteorological effects (cyclones, tornadoes, drought), fire, sea level rise and global climate change. Many of these hazards have a low return frequency within the district however they could, depending on the value of the area or development under threat, have a high risk. With many of these hazards a better understanding of their frequency and effects is required. The District Council has a role in working towards a better understanding in conjunction with Regional Councils. Hazards such as sea level rise are partially addressed in the plan through mechanisms such as development setbacks. With better understanding new rules may be imposed and existing rules reviewed. Any such changes would be by way of a public process.

7.2 OBJECTIVES POLICIES AND METHODS**7.2.1 ISSUES**

1. Land use, subdivision and development in areas prone to natural hazards creates risks to people, property, infrastructure and the environment.
2. Human activities including land use, subdivision and development can exacerbate the risk from natural hazards.
3. Some natural hazard avoidance, remedial or mitigation measures have the potential to adversely affect natural character, public access and ecological values.
4. Lack of public awareness of natural hazards and factors that exacerbate natural hazards increases risks.
5. Measures to manage natural hazards have the potential to adversely affect historic heritage.

7.2.2 OBJECTIVES**INSTABILITY**

1. To ensure activities on land subject to, or likely to be subject to, instability do not cause, increase or contribute to the risk from natural hazards.

INUNDATION

2. To ensure that the risk to property and the environment from flooding caused by watercourse, stormwater overflow and inundation by coastal waters are reduced.

EROSION

3. To ensure that the adverse effects to property and the environment from erosion including coastal erosion are avoided, remedied or mitigated.

GENERAL

To ensure that the public are informed about natural hazards in the District and understand why subdivision, land use and development activities must avoid, remedy, or mitigate the adverse effects from natural and land hazards.

7.2.3 POLICIES**INSTABILITY**

1. Adverse effects arising from land use and development, including the creation of development rights through subdivision, shall be avoided, remedied or mitigated on land that is unstable and it shall be demonstrated that the activity will not accelerate, exacerbate, or cause damage to the land or property or neighbouring land or property or present a risk to human safety.
2. Stormwater discharges directly to ground shall be avoided on land that is potentially unstable unless it is identified by an appropriately qualified person as being suitable to receive and absorb such discharges without causing adverse effects on the land stability of the site or neighbouring land.
3. Activity and development shall not cause instability or erosion in the coastal or riparian margins and the need for hard protection works will be avoided where practicable.

INUNDATION

4. Land use and development including the creation of development rights through subdivision on land within the 1% ANNUAL EXCEEDANCE PROBABILITY floodplain shall be avoided unless the risk from flooding to land, buildings and structures is avoided, remedied or mitigated.
5. Stormwater management systems should include low impact design responses where possible or include both 'hard' options (piped systems, secondary flowpaths) and 'soft' options (planted riparian margins, Low Impact Designs and open drains) as appropriate.
6. Adverse effects on flood protection works shall be avoided, remedied or mitigated.

EROSION

7. Land use and development including the creation of development rights through subdivision shall be avoided along the banks of streams, rivers, lakes and watercourses unless it can be demonstrated that this will not cause, accelerate or exacerbate erosion.
8. Land use and development including the creation of development rights through subdivision shall be located and designed to avoid, remedy or mitigate adverse effects on and from natural coastal and river processes and to avoid where practicable the need for protection works.
9. Land use and development including the creation of development rights through subdivision shall only occur if the activity maintains and enhances the natural buffering features of the coastal environment (including sand dunes and wetlands).

GENERAL

10. A precautionary approach to natural hazard management shall be used where limited information on the hazard risk exists.
11. A precautionary approach shall be used in avoiding or mitigating the adverse effects on people, property, infrastructure and the environment of earthquake, volcanic activity, sea level rise, tsunamis and global climate change.
12. Steps should be taken to ensure that any adverse effects of natural hazard management on historic heritage are appropriately avoided, remedied, or mitigated.

7.2.4 METHODS OF IMPLEMENTATION OF POLICIES**INSTABILITY**

1. Require site investigations of land subject to, or likely to be subject to, instability as part of the consideration of a resource consent application.
2. Apply controls on the deposition of CLEAN FILL on land to be used for subdivision or development.
3. Require resource consent applications, involving land subject to historic fill or CLEAN FILL operations, to investigate the suitability of the site for the intended activity.

INUNDATION

4. Require the location and design details for subdivision and development to identify and protect, where appropriate, rivers and streams, including overland and secondary flowpaths.
5. Apply minimum floor levels to habitable development in areas subject to, or likely to be subject to, inundation.
6. Apply a flood hazard policy area in the PLAN and limit development in this area.

7. Require specific reports as part of information requirements for resource consents for land identified, or likely to be, in the 1% ANNUAL EXCEEDANCE PROBABILITY floodplain.
8. Require subdivision and development to avoid, remedy or mitigate stormwater runoff from impervious surfaces.
9. Identify setbacks from waterbodies and use a range of approaches, including rules, to limit land use and development in these areas.
10. Identify setbacks from the coast and introduce rules to limit land use and development in these areas.
11. Introduce rules controlling development within the 1% ANNUAL EXCEEDANCE PROBABILITY floodplain.

EROSION

12. Identify setbacks from waterbodies and limit land use and development in these areas.
13. Identify setbacks from the coast and limit land use and development within the setback.
14. Require the provision of esplanade reserves upon subdivision of land adjoining the foreshore or edges of rivers or lakes.

GENERAL

15. Require the identification of actions to avoid, remedy or mitigate the effects of natural hazards as part of information requirements for resource consent applications, concept plans and structure plans.
16. Identify the requirements of Section 106 of the RMA as assessment criteria for all subdivision consent applications.

OTHER METHODS

17. Establish and maintain a natural hazards register that identifies the location of all known natural hazards, and use the register to inform the public.
18. Provide information on the location and characteristics of known hazards through Land Information Memorandums (LIMs) and Project Information Memorandums (PIMs).
19. Undertake LIDAR or other suitable modelling methods required for mapping overland flow paths, identify areas at risk from coastal inundation, and to map the 1% ANNUAL EXCEEDANCE PROBABILITY floodplain.
20. Where appropriate, use Integrated Catchment Management Plans to provide information on land subject to, or likely to be subject to, inundation from stormwater runoff, sea level rise or other natural processes.
21. Apply the provisions of Section 71 of the Building Act 2004 to buildings and structures in areas subject to, or likely to be subject to, natural hazards.
22. Use consent notices issued under Section 221 of the RMA to identify constraints on development of specific sites.
23. Refer to Regional Plan provisions for EARTHWORKS, CLEAN FILL management, stormwater management, works within a watercourse and sediment control.
24. Apply the relevant building code standards, particularly in relation to minimum floor levels for habitable rooms.

25. Require a heritage assessment (most likely an archaeological assessment) of the potential effects of any natural hazard management measure, if consultation with the New Zealand Historic Places Trust suggests that an adverse effect on heritage is possible.

7.2.5 REASONS AND EXPLANATION FOR OBJECTIVES, POLICIES AND METHODS

INSTABILITY

Instability is a significant hazard for the Franklin District. Stormwater flow, removal of vegetation, unsupported excavations, and placement of excavated fill or other fill can increase the likelihood of slumping, subsidence or settlement.

The identification of land subject to, or likely to be subject to, instability is an ongoing process. Council therefore takes a precautionary approach to development of such land. Site-specific investigations ensure risks can be identified and avoided, remedied or mitigated. Council has the power to require such investigations under Section 106 of the Resource Management Act 1991, and under Section 71 of the Building Act 2004. The information obtained is also used to update Council's hazards register to ensure the public has access to accurate information.

Specific rules are required to manage effects from land use and development that may trigger land instability. Controls on EARTHWORKS, CLEAN FILL, stormwater management, and removal of vegetation further reduce risks.

INUNDATION

Flooding in the District can generally be attributed to the inability of the drainage system to handle runoff, increased development intensity, inundation of river floodplains by inland waters in storms, and inundation of low-lying areas by coastal waters in storms.

Council generally applies a 1% ANNUAL EXCEEDANCE PROBABILITY flood or ponding level to areas prone to flooding, requiring minimum floor levels plus freeboard above this height. In some areas Council has more accurate information on the highest observed flood level (based on past events) and requires minimum floor levels plus freeboard above the highest observed flood level.

Council has identified that for the Manukau Harbour area, land lying below RL 3.8 metres above mean sea level datum is at risk from inundation. Specific development controls therefore apply. For the Firth of Thames, minimum floor levels plus freeboard apply to land lying below RL 3.5 metres.

Given that increased development places greater pressure on stormwater networks (both man-made and natural) because of increased runoff, Council sets performance standards for stormwater systems and uses assessment criteria for land use and subdivision consent applications. Council also manages activities that may interfere with natural water courses or reduce the capacity of the floodplain, such as EARTHWORKS, CLEAN FILL deposition, removal of riparian vegetation, and secondary works including fencing and retaining walls.

The Building Act 2004 also enables Council to address the effects of flooding on individual buildings and structures.

7.2.6 ANTICIPATED RESULTS

- To the extent possible, avoidance of the effects of natural hazards;
- A greater public awareness of natural hazards.
- To the extent possible, avoidance of siltation and sedimentation of waterbodies and adjoining properties.

7.3 RULE 7.3 - NATURAL HAZARD AVOIDANCE AND MITIGATION

Notwithstanding the standards or controls contained in any other part of the Plan, the following standards shall be complied with. Where an activity does not comply with Rule 7.3.1, the activity shall be deemed to require consent as a *Restricted Discretionary* activity. Where an activity does not comply with any other rule in 7.3, then the activity will be assessed as a Discretionary Activity (unless a higher activity status applies in the specific zone rules). All applications shall be assessed against the objectives and policies of Part 7, the assessment criteria in Part 53 and any specific assessment criteria identified for the zone the activity is proposed to be undertaken in.

Part 7.3 does not apply to NETWORK AND OTHER UTILITIES. Refer Part 15.1.

- 7.3.1** No BUILDING shall be sited within 30 metres of the edge of a river, lake, WETLAND or stream, unless this is specifically provided for or exempt in specific zone rules and exempt for the Aggregate Extraction and Processing Zone.

This rule does not apply to artificial water retention areas (eg. ponds or sediment retention areas).

- 7.3.2** The minimum floor level for any new OCCUPIABLE FLOOR SPACE shall be 500 millimetres above the 1% Annual Exceedance Probability floodplain or ponding level OR 500 millimetres above the highest observed flood level, whichever is the greater.

Note: Areas subject to the 1% Annual Exceedance Probability floodplain or pond level under Rule 7.3.1 include, but are not limited to, all or part of the:

- Areas specifically identified within a Drainage District.
- Areas specifically identified on the Hazards Register.
- Areas specifically identified in a Catchment Management Plan.
- Areas specifically identified in the PLAN.
- Port Waikato Ponding Area where the minimum floor level is RL 3.0.
- Waikato River Management Area.

- 7.3.3** The minimum floor level for any new OCCUPIABLE FLOOR SPACE in the low lying areas adjoining the Firth of Thames and shown on the *Hazards Register* shall be RL 3.5m (Reduced Level 3.5 metres) in terms of the LINZ (Land Information New Zealand) Datum OR 500 millimetres above the highest observed flood level, whichever is the greater.

- 7.3.4** SPECIFIED BUILDING AREAS and BUILDINGS shall be located outside the 1% ANNUAL EXCEEDANCE PROBABILITY floodplain or ponding level plus any applicable freeboard.

- 7.3.5** Structures (not defined as BUILDINGS) within the 1% ANNUAL EXCEEDANCE PROBABILITY floodplain or ponding level shall not inhibit or divert overland flow paths onto neighbouring properties, exacerbate or accelerate the hazard.

- 7.3.6** Onsite wastewater disposal systems shall be outside the 5% ANNUAL EXCEEDANCE PROBABILITY floodplain or ponding level.

- 7.3.7** HAZARDOUS SUBSTANCES shall be stored outside the 1% ANNUAL EXCEEDANCE PROBABILITY floodplain or ponding level.

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