

**PART 6 ENVIRONMENTAL PROTECTION**

**THE COASTLINE, WATER AND SOIL, LANDFORMS, VEGETATION, AIR, AMENITY AND NATURAL HAZARDS**

**6.1 INTRODUCTION**

This part of the District Plan outlines how the environment and resources of the District are to be managed through the District Plan. Matters relating to environmental protection and, in particular, the matters of the coastline, water and soil management, landforms, vegetation, air quality, general amenity, natural hazards and related matters are examined. Some of these matters have been subjected to limited study and research. The provisions of the District Plan with respect to the management of these matters and the techniques proposed for the avoidance or mitigation of loss or damage that may occur as a result of human activities or extreme natural events are set out.

**6.2 OVERVIEW**

The management of the resources of the natural environment is of significance throughout the District and the Council considers that the principal means of ensuring the sustainable management of these resources is through the provisions of the District Plan. The need for management measures is based on both the activities of the community through the use and development of land and on the unavoidable occurrence of natural events at a rate and frequency that require controls to mitigate or remedy the more serious consequences.

The impact of human activities in the District is addressed in Sections Two and Three of the Plan. Parallel, but often more intensive and extensive, impacts on the environment come about as a result of natural events. New Zealand, as a whole, is subject to a range of extreme natural events including geological events such as earthquakes, volcanic eruptions, erosion and mass movements and atmospheric events such as tropical cyclones, droughts, tsunamis and floods. This country's vulnerability to disasters resulting from extreme natural events may be increasing as development intensifies in areas at risk.

It is a possibility that the severity and frequency of extreme climatic events such as floods, droughts and tropical cyclones may increase in the future as a result of accelerated global warming. Sea levels may rise, local temperatures may increase and precipitation patterns may change. Increased community awareness and preparedness may assist in avoiding the worst outcomes of this process.

Accordingly, the District Plan contains a range of objectives, policies and controls designed to achieve appropriate management and protection of natural resources. These measures are in addition to ensuring, through zoning provisions, that suitable activities are located on particular areas of land. The specific provisions relating to environmental protection include provisions relating to the control of landfilling, the protection of underground and surface

water, the retention of topsoil and vegetation and the protection of resources from the possible effects of flooding, erosion and other natural hazards.

### **6.3 COASTAL ENVIRONMENT**

The Manukau Harbour forms a substantial portion of the western boundary of the District. This maritime edge displays a diversity of physical qualities and has significant visual, recreational, ecological and cultural values. Shoreline types range from flat rockshelves near the Papakura Stream to rocky cliffs and banks with sandy beach deposits below. The exposed south-westerly shores tend to be free of vegetation while large portions of sheltered inlets where sediments have been deposited are covered in mangroves.

The coastline and adjacent mudflats support a wide variety of bird-life. This includes species that are normally terrestrial as well as those that are specific inhabitants of estuarine environments. Blackbirds and thrushes use the mangroves as nesting areas. Herons feed on the mudflats, saltmarshes and pastures around the whole coastline. Wading species, such as the pied stilt and the South Island pied oyster-catcher, are common and link the land, as a breeding area, with the sea, as a source of food.

Other fauna, such as rabbits, frequent the soft mudstone banks with opossums and rats being common on all areas of the coast. Cattle, also, have a significant influence in the coastal area, often having direct access to the shore and causing disturbance to saltmarshes and tracking and degradation of banks.

The coastal edges of the District reflect a historic approach to resource use and development. Land adjacent to the shoreline has been intensively used with residential, industrial and agricultural activities prominent. Human modification of the coast has included reclamation, retaining walls, jetties and boat ramps, stormwater outfalls and attempts at re-vegetation using generally unsuitable exotic species. As a result, the natural process of coastal erosion has been accelerated, if not actively induced.

The ecological value of the coastal area lies in the diversity of shoreline types and habitats. Although substantially modified around the northern shores of the Pahurehure Inlet and behind the motorway cut-off, large sections of the southern shore of the inlet are relatively undisturbed. In particular, the Drury Creek has special ecological value and is an archetypical interface between salt and freshwater environments. Salt tolerant species such as mangrove gradually give way to fresh water species such as rush and raupo.

The quality of the Drury Creek is mirrored in the Pahurehure Inlet where rocky, sandy and muddy shores support a variety of vegetation types. The inlet is considered to have high ecological importance in the context of the Manukau Harbour as a whole because of the health of its mangrove communities and other saltmarsh species such as arrow grass. The inter-tidal vegetation of both the Pahurehure Inlet and the Drury Creek in the past has been classified as of regional significance and clearly comprises a valuable ecological resource for the District.

The management of the coastline requires the Council and the community to work together. In this way, proposals for land-based activities are likely to arise which recognise the value to the community of the coastline as well as the opportunities which it provides for use and development. Further, the co-operation of the Council and the Regional Council in managing their separate areas of responsibility will assist in the integrated use, development and protection of the whole of the coastal environment.

#### **6.4 WATER QUALITY AND THE CONTROL OF EARTHWORKS**

The need to protect and preserve water quality is a principal objective of the Act and one which is endorsed by the Council. The quality of coastal waters affects ecological recreational, cultural and amenity values and is a resource issue which needs to be addressed. Any pollution of the soil, water or stormwater has the potential to contribute to the levels of pollution found in the harbour. Further, the need to preserve the quality of underground water is a vital responsibility of Council in view of the contribution this source makes to supplies of potable water.

Land use and development may have substantial effects upon the landscape and ecological features of the District. Subdivisional or development works can cause serious erosion and flood problems as well as generating large volumes of silt which detrimentally affect water quality. These types of works have been identified as having consequences for silt pollution of natural waterways and the Manukau Harbour.

In recognition of this problem, including the disturbance of land, surface removal of vegetation and contouring and road construction, the Auckland Regional Council controls erosion and sedimentation by way of the Auckland Regional Plan for Earthworks and Sediment Control. In circumstances specified in the rules of the Regional Plan, all vegetation clearance and earthworks above those threshold limits for Permitted Activities itemised in Table A of that Plan, are required to obtain a resource consent from the Regional Council.

The purpose of including provisions limiting earthworks and vegetation removal is to achieve more efficient and effective erosion control in the Region. By limiting sediment generation and thus establishing a regime of preventative measures rather than one of curative measures, sediment discharge to a receiving environment can be controlled more effectively.

Further, stormwater runoff can contaminate streams and impounded areas and eventually, the marine environment including wetlands, estuaries and inlets. Such water bodies form a significant element in the ecology of the District and should remain free from pollutants. Through the provisions of the District Plan and related management techniques and control processes, the Council intends to secure appropriate levels of water quality through controls on earthworks and associated development.

Finally, contaminated soil can pollute underground and surface waterways over a long period of time through the gradual leaching of the soil. Controls in the District Plan will limit the use of certain substances and will require adequate safeguards. The remediation of contaminated land prior to redevelopment will be encouraged. Any activity which may pollute the water or soil will be required to

ensure that any potentially polluting materials are contained or discharged in an approved manner.

## **6.5 NATURAL LANDFORMS AND VEGETATION**

The physical landscape is an important determinant of the character and amenities of the District. Trees, bush, land contour and topsoil are especially important to the ecological robustness, physical character and visual quality of Papakura and much of the overall environmental quality and the general amenity of the District is based on these attributes. Because of these qualities, protection is warranted.

Activities which can have adverse effects on natural landforms include such land development activities as earthworks and building works. Site development activities, either for subdivision, re-contouring or building works can have substantial effects on the natural landscape features or amenities of an area. Effects such as soil loss may occur leading to the siltation of waterways and coastal waters.

Building works within certain defined areas can result in intrusive development and the reduction of visual amenity. In Papakura, the elevated land in the Keri Hills area makes a significant contribution to local amenity and is worthy of protection. The Hunua Hills have particular landscape qualities which are sensitive to inappropriate development.

Accordingly, and where practicable, the Council will preserve the natural character of the landscape through the protection of skylines, ridges and other landforms and in particular, the important geological features of the District which are identified in the Geo-preservation Inventory held by the Auckland Regional Council. In particular, Council will assess activities with regard to the effect on the natural landscape and the visual intrusiveness of such facilities. In this regard, a ridgeline amenity area has been established to preserve the visual amenity of the Keri Hills Ridge as viewed from the existing urban areas in the eastern part of Urban Papakura.

A significant contribution to the visual quality of the District is made by the existence of vegetation. Trees and bush provide valuable habitats to a range of fauna, enhance the visual environment, help prevent soil erosion, assist in the conversion of CO<sub>2</sub> to O<sub>2</sub> and assist in evapo-transpiration in flooded areas or as part of an effluent disposal system.

Much of the original vegetation of the District has been removed as a result of clearing for agriculture or for urban development and the Council is determined to arrest this process. As a result, the remaining vegetation in the plains areas of the District is significant by virtue of its rarity and is worthy of protection. The re-vegetation of the District as it further develops will restore much of the former character of the District and the Council will encourage this by limiting any further removal of existing vegetation.

A number of Significant Natural Areas have been identified throughout the District which have particular ecological significance and are worthy of protection. These Significant Natural Areas face threats from the inappropriate use and subdivision of land and provisions in the District Plan seek to afford the protection

of these significant natural resources by limiting the clearance of vegetation within these areas, and providing incentives for their protection.

## **6.6 RIDGELINE PROTECTION**

A number of ridges in the District are important to the physical character and visual landscape of Papakura. Such ridges as Keri Hills and those of the Hunuas provide a distinct visual boundary between the urban and rural areas of the District.

Wherever practicable, the Council intends to preserve the open space character and skylines of ridgelines, especially the more significant ones. In particular, the Council is concerned that no development should dominate the natural landscape or be visually obtrusive on ridgelines.

## **6.7 AUCKLAND REGIONAL COUNCIL**

In terms of the Resource Management Act 1991, the Auckland Regional Council has broad yet specific responsibilities in the matter of environmental protection. In particular, the Regional Council is responsible for processing and making decisions on applications for water permits, discharge permits, coastal permits and some landuse consents. This is to ensure that the environment is managed in a sustainable manner for present and future generations.

## **6.8 NATURAL HAZARDS**

### **6.8.1 Flooding**

Studies have been carried out and reports completed on behalf of the Council during the period 1991-1992 which have identified flood-prone areas within the District. Some of these areas are either zoned and/or used for urban activities. This includes floodplains which are flat, low-lying areas of land adjacent to the channels of larger streams and overland flow paths which are areas that will act as channels when flow exceeds the capacity of stormwater pipes and drains.

### **6.8.2 Vulcanism**

In geological terms, the Auckland Region is young and vulcanism has been a process with examples of recent activity. Rangitoto was active less than 800 years ago and must be considered as the last of a series of volcanoes in a field which is still potentially active.

Among local examples within Papakura District, Red Hill is a typical small volcano formed by the ascent of lava through passageways along fault lines. At Hunua Falls, the Wairoa River drops over 30 metres over another volcano situated on a fault line.

While it is safe to predict further volcanic activity, it is difficult to identify the timing or location and, while it is clear that vulcanism is preceded by earthquakes,

subsequent events can only be anticipated and addressed through preparedness and awareness.

### **6.8.3 Sea Level Rise**

The effects of global warming could, over a period of 50 or 100 years, raise sea levels by up to one metre, threatening coastal settlements and activities.

It is expected that most of the consequences of global warming will result from one of three physical changes; sea level rise, higher local temperatures or changes in rainfall patterns and increased storm intensity.

In coastal areas, a rise in sea level would produce a rise in groundwater levels and inundation of low-lying areas during significant rainfall events. This problem would be exacerbated in areas where stormwater outlets became submerged at high tide leading to a backing up of the system. Some of the coastal areas of the District may be affected by such a combination of events.

Papakura District has a coastline of some 32 kilometres, including significant shallow inlets such as Pahurehure Inlet. The risk to human settlement and other activities presented by possible future sea level rise and the implications for Papakura are evident. Accordingly, the District Plan contains provisions directed at the avoidance and mitigation of the adverse impacts of sea level rise.

### **6.8.4 Land Stability**

The range of soil and rock formations in the District, in combination with undulating topography, produce conditions of land instability and slope failure. The broad-scale geological information for the District shows the area to be underlain by fluvial and possibly coastal sediments underlying 40 to 170 foot terraces.

A number of studies have identified areas of land instability in the District. The Keri Hills area and the Hingaia Stream, Drury are two such areas. Beyond these specific studies, it is clear that some areas of cliff formation around the coast are likely to be unstable. This instability can be exacerbated by vegetation removal and excessive earthworks.

## **6.9 RESOURCE MANAGEMENT ISSUES**

The resource management issues which arise from a consideration of environmental protection and amenity matters and the occurrence of natural hazards include:

- the relationship between human activities and environmental quality and amenity.
- the relationship between land use and development and water quality, water quantity and soil conservation.
- the management of the coastline and the protection and enhancement of its ecological, recreational, visual and cultural values.

- the identification and recording of areas of natural hazards.
- the management and control of activities within known areas of natural hazards.
- the overall management and control of activities throughout the District in order to avoid and mitigate the adverse effects of natural hazards.
- the awareness of the community of the adverse effects of poor land management and natural hazards.
- the formulation of appropriate community responses to natural hazards.

## **6.10 RESOURCE MANAGEMENT STRATEGY**

The resource management strategy to address matters of environmental protection and amenity is:

- to formulate a resource management framework which recognises the effect of land-based activities of the coastal environment.
- to address the matter of natural hazards in the District through a combination of District Plan provisions, Annual Plan provisions, advice and education and monitoring and record keeping.
- to include in the District Plan provisions relating to the conduct of activities in identified flood-prone and unstable areas.
- to include provisions in the District Plan directed at the avoidance and mitigation of land erosion.
- to include provisions in the District Plan relating to noise, air pollution, glare, vibration, vegetation removal and water quality.
- to protect the relationship of Maori and their culture and traditions with their ancestral taonga, including cultural facilities, from inappropriate activities.

## **6.11 OUTCOMES**

The expected outcome of the strategy is the retention and enhancement of the present levels of environmental quality and amenity. Through the careful management of the natural and physical resources of the District, it is expected that there will be a measurable improvement in the quantity and quality of water resources, vegetation and general amenity as well as increased understanding and awareness of the environmental effects of various activities. Further, it is expected that there will be increased awareness of potential results of natural hazards and the range of appropriate responses.

## **6.12 OBJECTIVES AND POLICIES**

### **Objective**

- 6.12.1** *To enable the use and development of the natural and physical resources of the District in a manner which recognises the need for environmental protection.*

**Policies**

- 6.12.1.1 To zone land for various activities in recognition of any identified constraints.
- 6.12.1.2 To work in close partnership with the Auckland Regional Council on matters of soil and water management.
- 6.12.1.3 To ensure that all activities involving earthworks and the disturbance of land secure the necessary Regional Council consent for such earthworks, or from Council, if any such responsibilities have been transferred from the Regional Council.

**Objective**

- 6.12.2 *To assist in the preservation of water quality in the Manukau Harbour and underground and surface waterways of the District.*

**Policies**

- 6.12.2.1 To ensure, by the enforcement of environmental standards, that potentially polluting materials do not contaminate the soil, enter the drainage system, or pollute underground water supplies.
- 6.12.2.2 To introduce into the Plan controls on activities in order to reduce the potential for pollution of the underground water supplies of the District.
- 6.12.2.3 Silt pollution as a consequence of subdivisional or land development is to be subject to bylaw and Auckland Regional Council control to reduce the water polluting effects upon natural water courses and the Manukau Harbour.
- 6.12.2.4 To protect the quality of fresh water sources designed for potable public supply.

**Objective**

- 6.12.3 *To encourage efficiency and conservation in the use of surface and underground water resources of the Papakura District so as to preserve the public water supply while maintaining the potential of land to accommodate water demanding activities.*

**Policies**

- 6.12.3.1 To conserve the water resources of the District through efficiency of use by industry, the public and in the delivery of potable water supply.
- 6.12.3.2 To ensure, by the enforcement of environmental standards, that activities do not compromise the sustainability of the surface and groundwater resources of the District.



**Objective**

- 6.12.4** *To avoid or mitigate the impact on the District and the community of natural hazards.*

**Policies**

- 6.12.4.1** To further identify and report on the range of natural hazards which may have adverse impacts on the District.
- 6.12.4.2** To maintain a register of local natural hazards.
- 6.12.4.3** To take account of areas of known and potential natural hazards in formulating provisions for the use, development and protection of land in the District.
- 6.12.4.4** To control the conduct of activities in areas of known inundation.
- 6.12.4.5** To take esplanade reserves as provided for under the relevant legislation, upon the subdivision of land abutting the coastal marine area and waterways of the District.
- 6.12.4.6** To enable activities in areas of known instability where such development is supported by favourable geo-technical reports.
- 6.12.4.7** To implement initiatives in the area of public education and increase community awareness of natural hazards.

**Objective**

- 6.12.5** *To protect the character of visually significant ridgelines.*

**Policies**

- 6.12.5.1** To identify visually significant ridgelines in the District Plan.
- 6.12.5.2** To preserve the outline of the Keri Hills ridgelines.

**Objective**

- 6.12.6** *To maintain and enhance public access to the coastline.*

**Policies**

- 6.12.6.1** To require, through the subdivision and development of land, the provision of esplanade reserves abutting the coastline or similar framework laid down by the relevant legislation.

**Objective**

- 6.12.7** *To improve the recreational use and visual appearance of the coastline.*

**Policies**

- 6.12.7.1** To support proposals for recreational activities that do not have an adverse effect on the environment.
  
- 6.12.7.2** To recognise the integrated nature of the coastal environment and the need to adopt a precautionary or conservative approach to use and development in this area.

**6.13 EXPLANATION**

The above objectives and policies are designed to retain the present level of environmental quality and amenity in the District. Rules to implement these district-wide objectives are included in Sections Two and Three of the District Plan.

In addition, the objectives and policies are aimed at increasing the knowledge and understanding of the community with respect to environmentally sensitive resource use and development. On-going information gathering and the monitoring of resource use will be undertaken to maintain a continuously relevant and accurate monitor of the quality of development.

Where there are identified problems in future use of land and water resources, provisions will be developed in order to avoid or mitigate any possible adverse impacts. Where previous development has occurred within newly identified areas of environmental risk, possible methods of remedy will be investigated.

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