PART 5A - NATURAL RESOURCES

CONTENTS.....PAGE

PART 5A - NATURAL RESOURCES

5A.1 CONTENT AND STRUCTURE

This Part identifies and addresses resource elements of the Isthmus' natural environment which require particular protection measures both in terms of the Plan and other mechanisms.

NATURAL RESOURCES

AIR	WATER	HABITATS	LAND AND SOIL	MINERALS	ENERGY
Discharges	Discharges Aquifers Coastal Rivers Wetlands	Flora Fauna Coastal Wetlands	Discharges Stability Fertility Waste Management	Extraction	Transport Activities

The Plan's strategies address the natural environment issues in a variety of ways, from general zoning practices to development controls. This Part focuses on identifying and selecting items which require particular protection measures and procedures.

This Part is presented as follows -

- **Statutory Context**

  This outlines the statutory obligations of various authorities involved in the management of the natural environment.

- **Resource Management Issues**

  This outlines the significant resource management issues concerned with the natural environment of the district.

- **Resource Management Objectives and Policies**

  This outlines how this Part intends to deal with the natural environment.

- **Resource Management Strategy**

  This outlines the strategy for managing the natural environment elements and explains broadly the reasons for the management approach and the anticipated results.

- **Implementation**

  This sets out the methods of implementation adopted by the Plan.

5A.2 STATUTORY CONTEXT

The responsibility for the management of the elements of the natural environment is shared amongst all tiers of government. Many environmental issues do not respect territorial boundaries. To be effective some environmental management initiatives must flow from a national or regional policy level. The legislation recognises this. For example, it deliberately directs that a resource consent must be obtained from the Regional Council in respect of discharges of contaminants onto land or into water or air. The City Council has an important role in sustaining the natural environment, but is particularly reliant on national and regional policy statements. The Council is obliged to take action through the Plan to implement any national or regional policy statement.

All three tiers of government; national, regional and territorial, are charged with addressing the significant resource management issues concerning the elements of the natural environment, as set out in Clause 5A.1 CONTENT AND STRUCTURE above, in terms of Section 5, 6 and 7 of

the Act. (See PART 5 - NATURAL AND PHYSICAL ENVIRONMENT).

The principal goal of the Act, sustainable resource management, will be achieved by adopting strategies to address natural environment issues. The Plan attends to this in a variety of ways including methods to achieve identified environmental outcomes. These are based on achievable levels of attainment. The methods will be progressively adapted as a result of resource monitoring and further environmental studies.

5A.3 ENVIRONMENTAL MANAGEMENT

The Isthmus is a developed urban area. The natural environment has been substantially changed. Any resource management approach which addresses the sustainable management of the Isthmus' natural resources is influenced by this circumstance. However, there are particular environmental elements which can and must be maintained and, where practicable, enhanced. The Council has adopted a comprehensive approach to this management role, much of which is outside of the Plan. Major environmental protection initiatives are to be found in the Annual Plan and in the Consolidated Bylaw.

5A.4 RESOURCE MANAGEMENT ISSUES

The natural environment has assumed a greater importance than formerly under resource law. In managing the use and development of the district's natural and physical resources the Council must have particular regard to the requirements of the Act as detailed in PART 5 - NATURAL AND PHYSICAL ENVIRONMENT. To give effect to these obligations the Plan must:

- identify those natural resources in need of protection;
- adopt suitable measures to secure the protection and, where possible, the enhancement of these natural resources.

The key to the protection and enhancement of the natural environment is the recognition of the many faceted, interactive and interdependent systems within it. Destruction or contamination of one aspect of the natural environment can lead to a detrimental impact on several others.

Furthermore, as urban pressures increase for new and intensified uses, activities and works, protection of the natural environment will become increasingly important. There will be therefore a need for clear management policies setting out the framework for environmental protection and enhancement.

A number of specific natural environment resource management issues have been identified relating to the following matters:

- water;
- air;
- land;
- habitats;
- energy;
- minerals.

5A.4.1 WATER

Auckland is a city dominated by water. Not only is the Isthmus bounded by the Manukau and Waitemata harbours, it is also drained by approximately 90km of watercourses and is built over a number of large groundwater aquifers. The district's coast and streams represent a valuable resource due to their habitat, amenity and natural drainage values. The aquifers are a valuable resource in light of their existing and potential potable water source.

The main issues facing the Plan in the management of these resources is the avoidance of their degradation in terms of inappropriate stormwater runoff; the infiltration of these sources by contaminants; and their siltation through inappropriate earthworks and removal of vegetation.

Drainage System

Contamination of the Isthmus' urban streams and coastal waters originates mainly from the foulwater and stormwater drainage systems, and, to a lesser extent, from the uncontrolled flow of contaminated stormwater from industrial sites (particularly those flows contaminated by 'noxious' industry) and leachate from refuse landfill sites. Land use policies to regulate activities generating contaminants can reduce but never eliminate the discharge of contaminated water to receiving waters. It is important that the concentration of the contaminants is controlled, as far as possible, and that the discharge occurs at an appropriate location in a controlled manner.

Because the City's development has extended over a long period, the type, quality, and capacity of the public drainage network varies widely. A combined foulwater / stormwater sewer system serves approximately 16% of the City's area. Combined sewers are designed to overflow into watercourses, the harbour or stormwater systems. The intention of the overflow facilities is to channel the mixture of diluted sewage and stormwater to receiving waters at controlled points and so avoid flooding from manholes and catchpits. Some of the older sewers in this system are

nearing the end of their effective life and will require replacement in the future. Their gradual deterioration leads to an increasing incidence of overflows and risk of failure.

Potentially, the most significant impact on the environment and public health arises from the separated drainage system servicing the majority of the Isthmus. Overflows from this system may discharge undiluted raw sewage into the urban watercourses and the Waitemata and Manukau harbours. In some areas of the Isthmus, the level of development is placing pressure on the ability of this system to cope with the flows and, consequently, overflows occur more frequently than is desirable.

Much of the contamination of the water resources of any city arises from the discharge of wastes into the stormwater system. On the Isthmus, discharges from industrial areas, from factory yards, loading areas and washdown bays, and also from the City's roads, cause contamination. In order to control stormwater quality, a combination of land use controls and treatment systems appropriate to the circumstances are required.

A drainage asset management strategy has been adopted by the Council which seeks to maintain and upgrade the drainage system. To complement this management strategy, controls need to be placed on land use activities which could contaminate water resources. It is considered that the protection of water quality will be best achieved by using a combination of planning controls and engineering works.

Groundwater Aquifers

There are a number of areas within the City where groundwater aquifers exist which have potential as water supply sources. Some of these aquifers are used for potable water supply and it is very important that the land uses above them are strictly controlled to avoid contamination. Other acquifers are used as non-potable sources and these provide an inexpensive resource for industry and recreational users across the Isthmus. With the high costs of developing new headworks, it is increasingly important that these aquifers are protected as a potential groundwater resource for users who do not require the potable quality of the reticulated supply.

All of the aquifers are particularly susceptible to contamination because their high porosity allows any contaminant to spread rapidly. This risk is increased by stormwater soakage. Measures are included in the Plan which seek to prevent inappropriate or contaminated seepage into these aquifers while still providing for the natural recharge of them. Refer to ANNEXURE 2 of this Plan for maps identifying the location of the groundwater aquifers on the Isthmus, including those used for potable water supply.

Wetlands

It is unfortunate that the Isthmus has lost most of its original fresh water wetland areas and swampy stream margins as they have been largely drained to make way for development. The areas that still remain have rarity value and value for flood control and stormwater treatment, in addition to any remaining habitat value.

There are however a number of coastal wetlands around the Isthmus, and as the pohutukawa protects and stabilises the coastal cliffs and beaches, these salt-marsh and mangrove wetlands protect coastal land from erosion forming a barrier between the land and sea. These wetlands and particularly the mangroves also help to maintain water quality in estuaries and tidal waters by trapping pollutants and sediments and by slowing the movement of water and nutrients. Therefore a careful and considered planning approach is needed in order to protect against further impacts, and to restore, where practical, some of the once extensive wetlands and their associated habitats.

Contaminated Sites

Little is known about the potential and actual problems of contaminated sites in Auckland. At present an investigation is being undertaken by the Council to determine the extent of these problems. If adverse environmental impacts on groundwater arising from contaminated sites are to be avoided, tight controls, careful monitoring and active enforcement will be required.

There are many old refuse tip sites in the district that have been located in gullies, wetlands and on harbour margins. Much of the filling of these tips has been uncontrolled, with no gas controls, liners, drainage systems or groundwater protection. Landfills produce large volumes of leachate and gas as the material within the landfill decomposes. The leachate may contaminate watercourses and harbours, in addition to the contamination problems which are often found in the local groundwater. Landfill gas can cause explosion and fire risks to adjacent land. The identification and careful monitoring of these sites is needed to ensure that adverse effects on the natural environment are reduced or mitigated.

5A.4.2 AIR

Safeguarding the life supporting capacity of air is an essential resource management issue. Maintaining the quality of the resource in an urban context is particularly important in terms of amenity values. This quality is at risk through discharges of smoke, dust and fumes. Under the Act the prime responsibility for the control and maintenance of air quality lies with the Regional Council. The Council has a responsibility, however, to assist in avoiding adverse effects on this resource through the Plan's provisions.

5A.4.3 LAND

On the Isthmus, soil fertility is not regarded as a significant resource management issue. But avoiding instability or contamination of the soil is important. Soil also provides a

medium for plant growth as well as for stormwater filtration, treatment, absorption and retention.

Sustainability of this resource requires management to:

i) avoid unsuitable earthworks likely to cause erosion, habitat destruction in the streams and coastal area; or the destruction of groundwater aquifers, stormwater drainage paths, and natural landscape features such as the Isthmus's volcanic cones;

ii) prevent the contamination of soil through careless use, storage and handling of hazardous substances, or through uncontrolled landfill operations.

5A.4.4 HABITATS

The issue of protecting areas of significant indigenous vegetation and significant habitats of indigenous fauna, on the Isthmus, is complex. It concerns the coastal environment, the streams, pockets of indigenous vegetation and refuges for fauna. In an urban context these resources must be regarded as significant in terms of their relative scarcity rather than their pristine quality and scale.

The key to conservation of this resource is the protection and enhancement of habitats. Destruction of an area of bush, for example, can cause the loss of bird roosting and nesting areas, and the reduction of ground cover and associated ground habitats. In addition the removal of the bush can cause greater and faster stormwater runoff, with consequent hydraulic impacts and erosion, and an increase in the pollutant load carried (due to the loss of the filtering potential of the vegetation). The resultant siltation, pollution and changing hydraulic regime in the stream and the downstream coastal area can also lead to significant habitat loss and resultant reductions in species numbers and diversity. Although the Isthmus is largely developed, a number of remnant natural and modified habitats remain. Many of these are protected by various forms of reserve status or are in public ownership.

The Plan must focuses on reducing the pressures on the few remaining significant areas and habitats. For example, the Isthmus has already lost many of its saltwater and fresh water wetlands as a result of drainage to facilitate development. The wetland areas that remain now have value for flood control and stormwater treatment in addition to their valuable habitat role. Therefore, a careful and considered planning approach is needed in order to minimise further impacts and, where practicable, to restore some of the district's once extensive habitats.

5A.4.5 ENERGY

The Plan must have regard to the efficient use and development of natural and physical resources and their finite characteristics. Sustaining these resources requires particular attention to energy resources.

It is expected that the management of the energy resource will be directed through national policy statements. However the Plan has a responsibility to examine local energy issues and to adopt measures which will encourage increased efficiency in energy use, involving the greater reliance on non-polluting energy sources, the use of production and operating processes resulting in increased recycling and decreased waste generation.

5A.4.6 MINERALS

Auckland's volcanic heritage has left behind extensive reserves of basaltic rock, scoria and tuff material. Many of the deposits have been quarried. The built nature of the Isthmus together with environmental and amenity concerns to a large extent preclude new quarry operations in the district. The continued and efficient extraction of deposits in existing quarries until they are exhausted is thus an important resource issue.

5A.5 RESOURCE MANAGEMENT OBJECTIVES AND POLICIES

Overall Objective

To conserve, protect and enhance the natural environment and resources of the district.

Policies

General

- By developing a systematic approach to the identification of information required to secure the conservation of the district's natural environment.
- By ensuring that potential or actual adverse effects on the environment are avoided, remedied or mitigated so as to maintain the quality of the district's environment.
- By adopting a variety of zoning measures, where appropriate, to address identified natural environment issues.
- By requiring all relevant applications for resource consent to undertake an assessment of environmental effects.
- By undertaking an ongoing monitoring programme of the quality of the district's natural resources.

In addition to the general policies the following policies are applied to attain the objective by addressing particular issues -

Water

- By imposing controls on earthworks in order to protect the water quality of coastal areas, streams and groundwater aquifers.
- By restricting new development to that which can adequately provide for its particular drainage needs.
- By developing joint monitoring programmes with the Auckland Regional Council, in order to determine details of water quality and sources of contamination.
- By imposing development controls to protect the stormwater and foulwater system and groundwater aquifers from contamination and siltation.
- By having regard to the environmental effects of drainage works associated with watercourses and wetlands.
- By protecting both potable and non-potable aquifers with appropriate development controls and resource consent conditions.
- By recognising the importance of roof runoff and uncontaminated stormwater for aquifer recharge.

Air

- By limiting activities that may have significant adverse effect on air quality.
- By the adoption of noise standards.
- By helping to secure a reasonable level of daylight admission in appropriate areas.

Habitats

- By preparing an inventory of significant ecological areas on the Isthmus with a view to protection and enhancement.
- By conserving and protecting the rare, or significant habitats of the Isthmus and their indigenous fauna.
- By conserving and protecting areas of significant indigenous vegetation.
- By promoting the establishment and maintenance of suitable species of riparian vegetation so as to reduce the runoff of contaminants to streams and the coast, reduce bank and channel erosion, and enhance habitat values.
- By applying appropriate control measures including the adoption of suitable zoning to protect significant habitat areas.
- By identifying and protecting coastal margins, wetlands and small forest remnants that form wildlife corridors across the Auckland Isthmus.
- By recognising the ecological importance of wetlands and identifying any significant adverse effects that proposed developments may have on them.

Land

- By controlling earthworks so as to avoid erosion, habitat destruction in streams and coastal areas, and obstructions to groundwater aquifers and stormwater drains.
- By imposing controls on the use, storage and handling of hazardous substances, and on landfills so as to avoid the contamination of soils.
- By cliff top protection measures to counter erosion.
- By controlling discharges on to land.

Energy

- By adopting and encouraging business practices which will reduce energy waste.
- By promoting reductions in waste material generation, and appropriate management techniques for its disposal.
- By encouraging the efficient use of energy through transportation policies, land use location and construction initiatives.
- By having regard to national policy statements on energy resource management.

Minerals

- By providing for the careful management and extraction of mineral resources.
- By applying appropriate control measures including the adopting of suitable zoning to ensure environmental protection.

5A.6 RESOURCE MANAGEMENT STRATEGY

The Council has adopted a comprehensive approach towards the sustainable management of the district's natural resources. This approach incorporates provisions which seek:

- to prevent further overloading of sewerage and combined stormwater/sewerage systems;
- to control the potential and actual detrimental effects of land uses on air quality;
- to mitigate and control the effects of noise;
- to protect sensitive coastal areas and habitats;
- to protect groundwater aquifer areas;
- to minimise the adverse effects of discharges (either authorised or accidental) and to prevent industrial wastes and spills from entering the air, soil, natural waters, stormwater or the sewerage systems;

- to control drainage on sites used to store or handle hazardous substances;
- to control the risk posed by hazardous substances storage, use and handling;
- to control earthworks and landfills;
- to conserve and enhance vegetation and vegetated areas;
- to monitor the quality of the environment.

The methods adopted to achieve this approach lie both within and outside of the Plan. They build on a tradition of environmental protection employed by former local government on the Isthmus through a variety of measures.

The Annual Plan, with its ability to programme capital works for the improvement of environmental quality, particularly water quality, is a major component in the Council's strategy on natural resource protection and enhancement.

An essential factor in environmental management is the wide ranging influence of the Council's bylaws. The City's Consolidated Bylaw seeks to achieve high amenity values throughout the district. It is intended that the bylaws together with the development controls of the Plan will provide a co-ordinated and complimentary approach to the control of effects.

The Plan

The Plan adopts a strategy to protect the varied natural resources on the Isthmus. The strategy recognises the limits of the Council's authority in terms of the Act; and the availability of other measures and opportunities within the Council's powers to maintain and enhance the Isthmus' natural resources. The implementation of such a strategy results in measures to achieve it pervading all parts of the Plan.

Water

The Council adopts a variety of resource management mechanisms to recognise and enhance the qualities of the City's water resource:

- A zoning pattern, particularly in the residential areas of the City, is applied with controls to manage the effect of development on the district's stormwater systems;
- Financial contributions are required from new development to improve the drainage infrastructure, and to mitigate adverse effects on it;
- Development is limited in those areas with a significant drainage problem until it is remedied;
- Hazardous facilities are subject to controls to avoid contaminated discharges into the stormwater drainage system and the district's underground aquifers;
- The Council's capital works programme gives particular attention to the problems identified in the drainage management plans;
- Development controls are applied which are designed to contribute to the replenishment of the underground aquifers through landscaped permeable surface requirements;
- Controls are applied which seek to avoid unsuitable earthworks which may adversely effect groundwater aquifers or stormwater drainage paths and contaminated runoff;
- Working with the Auckland Regional Council to better identify the extent and potential yields of the groundwater aquifers;
- Strict enforcement of yard and hazardous facility controls over aquifers in association with the Auckland Regional Council. Refer to ANNEXURE 2 of this Plan for maps identifying the location of the groundwater aquifers on the Isthmus, including those used for potable water supply;
- Controls are applied, where appropriate, in line with the Auckland Regional Council's approach on stormwater treatment, for discharges to the Council's stormwater system from large industrial yards and carparks, particularly in soakage areas;
- The continued use of ground soakage for the disposal of stormwater where this is available and appropriate;
- Encouraging the use of ground soakage for the disposal of roof runoff;
- Consideration of the sustainable recharge of aquifers when considering relaxation of site coverage controls;
- Recognition of the role that stream channels can play in protecting downstream habitats by the treatment of stormwater.

Environmental Outcome: Measurable improvement in the quality of the City's streams, waterways and coastal areas.

Air

The Council has assumed a substantial part of the functions, powers and duties of the Regional Council in relation to the discharge of contaminants into the air.

The Plan adopts specific measures through its rules to avoid, reduce or mitigate the adverse effect of any air contaminant including odours, fumes, dusts, gases, liquids or solids.

Environmental Outcome: Maintenance, and where necessary, enhancement of the district's air quality.

Habitats

In order to protect and enhance the Isthmus' remaining areas of significant indigenous vegetation and significant habitats the following resource management approaches are applied:

- The application of the Open Space 1 zone to significant ecological areas which aims to enable conservation and protection of these areas;
- The identification of a Coastal Management Area within which particular attention is given to the protection of coastal vegetation;
- Various management techniques designed to protect significant existing vegetation;
- The identification and evaluation of aquatic and terrestrial habitats within the Isthmus with a view to their protection;
- Adoption of effective controls on earthworks and soil removal;
- The recognition and promotion of tree planting and revegetation to provide for improved ecological habitats in all areas of the Isthmus;
- The enhancement and restoration, where practical, of aquatic habitats;
- Identification of reserves, coastal margins, wetlands and bush areas that form wildlife corridors across the Auckland Isthmus in association with the Auckland Regional Council and the Department of Conservation.

Environmental Outcome: Increased diversity and vitality in habitats and improved productivity in ecosystems.

Land

In the Isthmus' developed urban area, the emphasis of the management of this resource is focussed on avoiding the prospect of instability or contamination. The Plan adopts particular measures to achieve this:

- The control of earthworks and soil removal;
- Adoption of appropriate controls for works associated with subdivision and development;
- Identification of areas with land stability problems and controls on development within these areas;
- Controls are imposed on the use and decontamination of contaminated sites.

Environmental Outcome: Preserve soil stability and prevent its contamination.

Energy

It is expected that national policy statements on the management of the energy resources will be published in the future. The Council in its functions as a land use and development manager and building control authority applies a variety of local measures to promote energy efficiency:

- Design and control of buildings;
- Measures to obtain efficient and viable use of the existing transportation resources;
- Measures to encourage the efficient use and improvement of the public transport systems;
- Measures which promote reductions in waste generation;
- Control of the location of activities which influence the travel patterns of the Isthmus;
- Measures which support urban consolidation in the Region.

Environmental Outcome: Increased recognition of and contribution towards the sustainability of the energy resource.

Minerals

In order to achieve the continued and efficient extraction of mineral deposits the Plan applies specific resource management measures. In particular, existing quarry sites are given a special quarry zoning which enables their continued operation while ensuring no significant adverse effects on the environment.

Environmental Outcome: Management of mineral deposits to secure their efficient use while avoiding adverse effects on the environment.

Monitoring

Environmental processes are complex. Considerable information is required to identify clearly the most significant components and impacts and to ensure monitoring programmes are carefully targeted. It is clear that in the future any successful environmental approach must recognise the importance of a comprehensive, effective and ongoing monitoring system. The Council therefore intends to monitor both the natural resources within the district and those rules of the Plan which seek to protect and enhance them. Where it is found that greater protection is needed or that new areas of concern have arisen, steps will be taken to change the Plan's provisions through the plan change procedures.

A map illustrating elements of the natural environment is presented in Annexure 2. The monitoring programme will increase the Council's knowledge about the environment. This information will be continuously updated.

5A.7 IMPLEMENTATION

The rules for the protection and enhancement of the natural resources of the district are found throughout the Plan, particularly in -

Part 4A	General Rules
Part 4B	Financial Contributions.
Part 5B	Coastal
Part 5C	Heritage
Part 5D	Natural Hazards
Part 5E	Hazardous Facilities
Part 7	Residential Activity
Part 8	Business Activity
Part 9	Open Space Activity
Part 10	Special Purpose Activity
Part 11	Subdivision