

# 14.0 Discharges of Waste to Land

## 14.1 Introduction

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This chapter of the Plan addresses the management of all adverse environmental effects that may arise from discharging solid or liquid waste to land. These effects include water and soil contamination, disruption to land ecosystems and reduction of amenity values.

## 14.2 Issue

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**The discharge of solid and liquid waste into or onto land that affects the potential or life-supporting capacity of land or has adverse effects on the environment.**

Whenever waste is discharged to land there is the potential that contaminants from that waste will leach into groundwater or be carried by run-off into surface water. In the Marlborough Sounds area surface and groundwater act as individual or community sources of water. Therefore, it is vital that water is not contaminated by waste so that it continues to meet the water quality standard set. The Marlborough Regional Policy Statement sets water quality at the level necessary for the sustainable management of freshwater and coastal ecosystems.

Rural activities may result in chemical contaminants entering freshwater and being carried to the Marlborough Sounds marine environment. Run-off carrying nutrients and chemicals could have significant adverse effects on freshwater or marine environments.

A discharge of waste to land can contaminate the soil which can have a significant adverse effect on soil quality with a consequent adverse effect on land productivity. Contamination of soil reduces opportunities for land use and places the costs of restoration on future generations.

The discharge of waste to land may disrupt land ecosystems. Land ecosystems rely on interactions between the physical, chemical and organic components of the soil to create a system which is able to sustain the use, development and protection of the land. In Marlborough, the community relies on the use, development and protection of the land for cultural, social and economic wellbeing.

The discharge of solid or liquid waste to land may adversely affect amenity values if it causes windblown rubbish, dust, odour, reduced air quality, or attracts vermin or has adverse visual impacts. The management of waste disposal must seek to avoid, remedy or mitigate all adverse effects where they affect the sustainable management of the resources of the Marlborough Sounds.

The Marlborough Regional Policy Statement seeks to avoid, remedy or mitigate the effects of waste through reducing waste production, reusing the constituents of waste, recycling waste products, and recovering components from waste products.

### 14.2.1 Objectives and Policies

Objective 1	The disposal or burial of solid waste in such a way that water and soil quality, land and water ecosystems, and amenity values are not adversely affected.
Policy 1.1	Encourage reduction in the amount of waste produced and disposed of in order to reduce the adverse effects of disposal or burying of waste.
Policy 1.2	Mitigate the adverse effects of burying solid waste by rationalising the District's landfills to a single site capable of avoiding the contamination of surface and groundwater.
Policy 1.3	Avoid adverse effects on the amenity of the Sounds area caused by the disposal of solid waste onto private and public land.

*The first priority for waste management is to reduce the amount of waste created in order to reduce the adverse effects of waste disposal.*

*In the Picton and Whatamango areas the Council currently provides a weekly kerbside refuse collection from all residential households. The Port Company provides and services bins in the port and marina facilities at Picton, Waikawa and Havelock for visitor use. Over the summer the Council expands the network of skips located throughout the Sounds to cater for increased numbers of people visiting the area.*

*Rubbish is collected at refuse transfer stations located at Picton, Rai Valley and Havelock and transported to Marlborough's Regional Landfill.*

*The dumping of solid waste in areas not specifically managed for waste disposal can contaminate water, create dust and odour, and damage landscape and amenity values. The illegal dumping of household waste is an issue in the Marlborough Sounds, particularly over summer when resident and visitor numbers increase.*

### 14.2.2 Methods of Implementation

Rules	Rules make provision for the burial and disposal of solid waste to land subject to performance standards.
Education	Promote waste reduction techniques, including reuse and recycling of materials; and benefits of waste reduction to the receiving environment and waste producers.  Promote appropriate siting, size and management of offal pits for farm organic waste disposal.  Education will encourage residents and businesses not to choose inappropriate methods of waste disposal.
Incentives	The Council will develop an ' <i>Environmental Management Challenge</i> ' Programme to encourage industry to adopt waste minimisation techniques.  The Council will continue to charge waste disposers for the collection of waste and recyclable materials, to encourage waste minimisation.

	The Council will establish and maintain a waste exchange network to encourage the reuse of materials.
Enforcement	The Council will issue abatement notices and enforcement orders for the illegal dumping of solid waste on any land.
Advocate	The Council will advocate to the Minister for the Environment for development of national systems to address: <ul style="list-style-type: none"> <li>• Waste minimisation; and</li> <li>• Full environmental accounting of resources disposed of as waste.</li> </ul>
Investigation	The Council will continue to investigate the effects of solid waste disposal to land, air and water to support education programmes, justify regulation, and define the need to expand regular waste collection service.
Works	The Council will implement its programme to rationalise the District's landfills. Transfer stations will replace all existing landfills in the Plan area by the year 2000.

*Plan rules ensure that the adverse environmental effects of waste disposal are avoided where convenient alternative waste management options exist.*

*Education is required to inform the community of the adverse effects on water quality arising from the burial and disposal of waste and to promote practices involving waste minimisation.*

*Inappropriate disposal of solid waste in the Marlborough Sounds area is unacceptable. Abatement notices for inappropriate dumping on land will be issued to ensure that dumping does not cause land or water contamination or reduce amenity values. The Council also has the power to control litter under the Litter Act 1979, the Litter Infringement Notices Order 1987 and Bylaws under the Local Government Act 1974. These powers to control and take action on littering complement Council's powers under the Act.*

*Investigation is essential to define the adverse environmental effects apparent from disposal practices, including the burning and burying of waste. Information means that the Council works and activities and the Plan rules can be reviewed for their appropriateness.*

### 14.2.3 Objectives and Policies

Objective 1	The treatment and disposal of human, rural and industrial liquid waste, including sewage sludge, in such a way that water and soil quality, land and water ecosystems and amenity values are not adversely affected.
Policy 1.1	Ensure that the receiving environment is not adversely affected by the treatment or disposal of human, rural and industrial liquid waste.
Policy 1.2	Encourage attainment of higher standards of waste treatment to reduce the discharge of contaminants and avoid, remedy or mitigate the adverse effects of waste disposal.

*Effluent can be discharged to land by way of any approved system including transpiration fields, spray irrigation, oxidation ponds, activated sewage sludge plants or a combination of these. The discharge to land of effluent and waste from some activities may cause offensive odours, contaminate the soil and groundwater, and smother pasture leading to a significant reduction in the life-supporting capacity of the land. However, with appropriate management some intensive farming effluent can have a positive effect on the life-supporting capacity of land.*

*Effluent from reticulated sewage treatment systems can be discharged either to land or to water. Given the character of the Marlborough Sounds area, its relationship with the water of the Sounds, and the significant use of coastal water for marine farming, land disposal of sewage effluent is preferable to disposal to water. However, the steep slope of the land within the Sounds area and predominance of heavy clays may prevent effective local land disposal.*

*Sewage sludge is a by-product of the sewage treatment process. It is usually disposed of to land. Special attention must be given to the disposal of sewage sludge as it contains high levels of pathogens and is therefore a human health risk. Septic tank cleaning and the disposal of sewage sludge is listed as an offensive trade under the Health Act 1956 and requires a licence from the Public Health Service and the Council. Sewage sludge from septic tanks and sewage treatment plants must be disposed of in an approved manner.*

*There are a number of industrial and trade premises located at Picton, Havelock and Rai Valley. The waste produced at these premises is disposed of to sewer systems via the trade waste system or through on-site waste disposal systems. Irrespective of where waste is disposed to waste producers should seek to discharge the minimum amount of waste and understand the adverse effects of their discharge on the health and functioning of the receiving environment.*

#### 14.2.4 Methods of Implementation

Rules	Rules make provision for the treatment and disposal of liquid waste subject to standards and terms.
Education/ Guidelines	Promote strategies for minimising adverse effects associated with the treatment and disposal of liquid waste.
Monitoring	Assess the adverse effects of existing treatment and disposal systems on land and water ecosystems. In particular, the Council will monitor surface and coastal water adjacent to permitted and existing treatment systems.
Investigation	Council will investigate the availability and practicality of alternative treatment and liquid waste disposal systems for use in the Marlborough Sounds.

*Regulation allows the disposal of human and rural effluent based on an approach which permits the discharge of on-site effluent within a specified volume where there will be minimal adverse effects on the environment.*

*The Plan allows the discharge of treated waste subject to performance standards which seek to avoid soil and water contamination.*

#### 14.2.5 Objectives and Policies

Objective 1	Recycling of waste materials or reuse on-site (including the storage of silage and composting of organic and green waste) in such a way that water and soil quality, land and water ecosystems and amenity values are not adversely affected.
Policy 1.1	Encourage the recycling of waste materials and their reuse on site (domestic and horticultural composting and the making of silage).
Policy 1.2	Mitigate odour, dust and contaminants arising from large scale composting and silage operations that discharge to land.

*Composting is a means of reducing the quantity of solid waste disposed of in landfills. It is estimated that approximately 40% to 60% of the Marlborough waste stream is compostable (eg; green material, fish waste and untreated sawdust). In addition to reducing the disposable component of the waste stream, composting creates a valuable resource that can be used for fertiliser or soil enhancer for home gardens, parks, forestry, agriculture, horticulture and viticulture. The Council recognises that composting will extend the life of the landfills, reduce contamination of water and the emission of landfill gases.*

*Silage is a common practice for storage of animal feed and may create adverse effects similar to composting which need to be avoided, remedied or mitigated to prevent discharge of contaminants into land or water.*

### 14.2.6 Methods of Implementation

Rules	Rules make provision for the composting of organic materials, subject to performance standards.
Advice	The Council will advise farmers on ways to avoid, remedy or mitigate the adverse effects of their activities, including location and management of silage pits.
Education	The Council will, through the Waste Education Program, continue to promote the benefits of composting, composting methods and ways to avoid, remedy or mitigate adverse effects from composting.
Incentives	The Council will provide compost bins and discounted landfill charges for the separation of green waste prior to disposal.

*Allowing composting and silage making enables materials to be reused on site and is a sustainable use of resources. By specifying performance standards, any potential adverse environmental effects can be avoided or mitigated. Regulation separates those operations unable to meet performance standards that could create a significant adverse effect. Large-scale composting and silage operations will require resource consent for the discharge of leachates because there is greater potential for significant adverse effects on soil and water resources and ecosystems.*

### 14.2.7 Objectives and Policies

Objective 1	The storage and transfer of solid and liquid waste materials in such a way that water and soil quality, land and water ecosystems and amenity values are not adversely affected.
Policy 1.1	Avoid, remedy and mitigate adverse effects associated with the transfer and storage of waste materials.

*The importance of the coastal and land resources in the Marlborough Sounds area for communities' cultural, social and economic wellbeing demands the effects of storage or transfer of solid wastes are avoided so that there is no adverse effect on the potential or life-supporting capacity of those resources.*

### 14.2.8 Methods of Implementation

Rules	Rules make provision for the storage and transfer of materials, including wastes, subject to performance standards.
Education	Promote methods for the safe transfer of solid and liquid materials, including wastes, that avoids adverse environmental effects. Education would include techniques to adequately secure loads and prevent leakages.
Enforcement	The Council will issue abatement notices and enforcement orders where the storage of solid and liquid wastes creates any significant adverse effect.

*Education is the key means of changing people's attitudes and behaviour. If most of the community is attempting to achieve desired outcomes then regulation is only needed to ensure complete community achievement of outcomes.*

### 14.3 On-site Management of Domestic Wastewater in the Marlborough Sounds

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Almost all houses, holiday homes and buildings used for visitor accommodation, outside of Picton, Waikawa and Havelock, rely on on-site systems to manage domestic wastewater. This means that domestic wastewater generated in the building(s) receives initial treatment in some form of treatment unit, such as a septic tank, and is then discharged into or onto a land application area on the property. Contaminants present in the wastewater, such as bacteria and nutrients, are then further treated or absorbed as the wastewater passes through the soil.

In the Marlborough Sounds, domestic wastewater is discharged into soils of low permeability, into thin soils with limited ability to treat contaminants, or into extremely permeable alluvial soils. In all cases, there is the potential for contaminants to travel beyond the land application area, and into the surrounding environment, through runoff or infiltration.

Most buildings used for residential or accommodation purposes in the Sounds are located in close proximity to streams, creeks, underlying groundwater or coastal water. This means that, if the on-site wastewater management system servicing the building performs poorly, there is a risk that the subsequent discharge will contaminate water. The Council's monitoring has already established that there are elevated levels of bacteria in some coastal waters over the summer months.

The Marlborough Sounds support significant marine farming and tourism industries that rely upon a high standard of water quality. The coastal waters are also an important recreational resource and have spiritual and cultural significance to local iwi. For these reasons, objectives contained elsewhere in this Plan create an expectation that water quality is to be maintained at or enhanced to an SG standard (see Chapter 9 for further details). It is therefore clear that the risk of contamination needs to be managed. This involves two key steps.

Firstly, it is important to improve the performance of existing on-site systems over time. It is estimated that there are in excess of 3000 existing systems in the Marlborough Sounds, the performance of which is extremely variable. This is because:

- (a) The systems are not necessarily compatible with the site conditions or current occupancy of the building, and were often based on dated standards. For example, many septic tanks in the Sounds discharge wastewater into soak pits or short trenches, which have a tendency to eventually fail when installed in soils of low permeability. The older the system, the greater the potential for failure;
- (b) The age of the on-site system can mean that the various components are no longer watertight and may therefore leak;
- (c) Not all systems are maintained in an efficient operating condition. A lack of maintenance can contribute to the potential for failure identified in (a).

This situation is made worse by the fact that many on-site systems are inaccessible for servicing;

- (d) Stormwater is entering the treatment unit or land application area, increasing the hydraulic loading on the site soils; and
- (e) Given the age of some systems, and the rate of property ownership change in the Sounds, present owners may know little about the on-site wastewater management system on their property.

The Council's ability to respond to poorly performing or failing systems under the Resource Management Act is limited to instances of non-compliance with permitted activity rules and resource consents. It is considered that a more proactive and integrated programme is required to resolve the issues.

Secondly, it is important that the existing situation is not made worse by future residential subdivision and development. There is still undeveloped land zoned for residential purposes by this Plan, and many of the sites are more difficult to develop and service than those already built upon. It is important that any on-site wastewater management system installed is appropriate to the site, given the nature of the discharge and the site conditions.

A demand for further residential properties throughout the Sounds is reflected in resource consent applications to subdivide land. It is important that the density of future properties does not exceed the ability of the surrounding environment to assimilate domestic wastewater. This may mean that existing and future subdivisions are better serviced by off-site systems.

It will be important to continue monitoring the performance of on-site systems, and their potential effects on the surrounding environment, to determine whether the various initiatives identified in this Plan are effective.

## 14.4 Issue

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**The use of inappropriate on-site wastewater management systems to service buildings producing domestic wastewater, and/or the poor management and maintenance of on-site wastewater management systems, can result in adverse effects on the surrounding environment.**

If the discharge of domestic wastewater to land exceeds the capacity of the soil to assimilate it, then the wastewater will not be contained within the land application area (commonly referred to as "failure") and will adversely affect the surrounding environment. Such effects may include the contamination of water, particularly given the proximity of many on-site systems to streams, to coastal water or, in some cases, to underlying aquifers. Amenity values enjoyed on neighbouring properties can also be adversely affected by the runoff of mismanaged domestic wastewater or from odour associated with the operation of the on-site system. By increasing the hydraulic load on the site soils, the discharge of domestic wastewater may result in the degradation of the soils, or may initiate instability or make existing instability worse.

The Marlborough Sounds present unique constraints for the successful on-site management of domestic wastewater, including poorly drained soils, thin soils, steep slopes, unstable geology, periods of heavy rainfall and the potential for low evapo-transpiration. If the method of treating the wastewater and/or the nature of the land application area does not take into account and reflect the site conditions, system failure, and adverse effects on the surrounding environment, are more likely.



A high proportion of existing residential buildings are serviced by conventional on-site systems, comprising a septic tank and some form of a land application area (usually a soak pit or trenches). However, advanced on-site systems are increasingly being used to treat the wastewater to a secondary standard before it is discharged into or onto land within the land application area. The operational and maintenance requirements of each system vary, from the pumping out of septic tanks at approximately five year intervals, through to the regular inspections (undertaken by trained technicians) required for some advanced on-site systems. Whichever system is used, it will not perform in an efficient operating condition unless appropriate maintenance is undertaken regularly. A lack of maintenance increases the risk of system failure and creates the potential for adverse effects on the surrounding environment.

The extent to which existing discharges of domestic wastewater from on-site systems are adversely affecting the Marlborough Sounds environment is not certain. It is difficult to monitor such effects, due to a lack of knowledge about existing on-site systems, the intermittent nature of occupancy, the isolated nature of much of the Marlborough Sounds, variable weather and tides, "natural" sources of contaminants and the extent of coastal waters.

#### 14.4.1 Objective and Policies

Objective 1	To ensure that new on-site wastewater management systems are designed, located and installed to effectively treat and contain all domestic wastewater on-site.
Policy 1.1	To require discharge permits for all new on-site domestic wastewater discharges.
Policy 1.2	To approve discharge permit applications for new on-site domestic wastewater discharges where: <ul style="list-style-type: none"> <li>(a) There is no public sewer located within 30 metres of the lot boundary or within 60 metres of the closest building on the lot;</li> <li>(b) The on-site wastewater management system will effectively service the building(s) to which it is connected;</li> <li>(c) The land application area is located as far as practical from any surface waterbody or coastal water;</li> <li>(d) The discharge will not contaminate surface water, coastal water or groundwater;</li> <li>(e) The discharge will not initiate instability, or make existing instability worse;</li> <li>(f) The discharge will not create offensive or objectionable odour or adversely affect the amenity values enjoyed on adjoining properties.</li> </ul>
Policy 1.3	All design flows (the volume of domestic wastewater to be discharged into or onto land) shall reflect the potential occupancy of the building(s) that the on-site wastewater management system serves.

Policy 1.4	Land application areas shall be sized to accommodate the volume of domestic wastewater to be discharged, taking into account the characteristics of the site.
Policy 1.5	All domestic wastewater shall be discharged evenly over the land application area at a rate that does not exceed the ability of the land to assimilate the wastewater.
Policy 1.6	All treatment units shall be located so as to be accessible for maintenance purposes.
Policy 1.7	To avoid the use of conventional on-site wastewater management systems where it is proposed to discharge domestic wastewater into or onto poorly draining soils (such as clays) or porous soils (such as gravel, coarse sand or fractured rock).
Policy 1.8	To avoid the use of soak pits.
Policy 1.9	<p>When considering discharge permit applications to discharge domestic wastewater into or onto land, to have regard to:</p> <ul style="list-style-type: none"> <li>(a) The soil characteristics of the site and surrounding area, including hydraulic capacity and ability to treat contaminants present within the domestic wastewater;</li> <li>(b) Site constraints including geology, topography, slope, lot size and shape, climate, and existing structures;</li> <li>(c) Alternative options for managing the domestic wastewater, including discharge to an alternative location on the same site;</li> <li>(d) The need for a reserve field;</li> <li>(e) The way in which stormwater is managed on the site and the potential for stormwater to impair the performance of the on-site wastewater management system;</li> <li>(f) Relevant guidelines and standards; and</li> <li>(g) Potential cumulative effects.</li> </ul>
Policy 1.10	<p>To provide guidance on:</p> <ul style="list-style-type: none"> <li>(a) Appropriate procedures for the investigation and evaluation of a site for the on-site management of domestic wastewater; and</li> <li>(b) The range of on-site wastewater management systems available.</li> </ul>
Policy 1.11	To require the designers of new on-site wastewater management systems to certify the installation of the system.
Policy 1.12	To enable the use of alternative technologies for managing domestic wastewater.

*An implication of living, holidaying or providing visitor accommodation in the Marlborough Sounds is the need to appropriately manage the domestic wastewater generated as a result of these activities. In areas not serviced by a reticulated sewerage system, this is achieved by installing and operating an on-site wastewater management system.*

*It is important that the design, location and installation of the on-site system take into account and reflect the site characteristics, as this will ultimately determine whether the domestic wastewater can be treated and contained on-site. To ensure that this is the case, the Council must be able to consider all proposed on-site systems and retain discretion over whether the discharge from the system can commence. As identified in Policy 14.4.1.1.1, a discharge permit is required to authorise the discharge of contaminants from all new on-site systems. A new on-site system includes extensions to, or replacements of, existing land application areas.*

*Any applicant for a discharge permit will need to demonstrate that the design of the proposed on-site system satisfies all of the requirements of Policy 14.4.1.1.2. Policies 14.4.1.1.3 to 14.4.1.1.9 establish principles or identify matters that are relevant to, and will assist, this assessment process. Designers and Council staff alike can therefore use these policies to ensure that proposed on-site systems are appropriate, given the nature of the discharge and the site conditions.*

*A variety of standards exist for the on-site management of domestic wastewater, including AS/NZS 1546.1:1998, AS/NZS 1546.2:2001, AS/NZS 1546.3:2001, AS/NZS 1547:2000. These standards can also be used to assist the assessment of new on-site systems. However, as the Marlborough Sounds presents unique constraints to on-site servicing, there is also the need to interpret these standards in the context of local conditions. The policies therefore also signal the need to provide greater guidance to designers given these unique constraints. This guidance will reflect the Council's experience with different types of on-site systems in the Marlborough Sounds.*

*The Council is already aware that conventional on-site systems do not perform in certain soil types in the Marlborough Sounds or where soak pits are used. It would therefore be inappropriate to continue to allow such on-site systems to be installed.*

*Historically, conventional on-site systems were the only option for managing domestic wastewater, but many alternative technologies are now available. The appropriateness of alternative on-site systems to the types of environment that exist in the Marlborough Sounds will be investigated by the Council on an ongoing basis. The results of these investigations will be provided to homeowners through educational resources.*

*To ensure that the on-site system is installed according to design, the designer will be required to certify the installation of the system and provide that certification to the Council.*

*By ensuring that the design, location and installation of the on-site system takes into account and reflects the site characteristics, adverse effects on water quality, soil quality and stability, and amenity values can be avoided. The use of these policies will therefore assist in maintaining the very qualities that attract people to live and holiday in the Marlborough Sounds.*

## 14.4.2 Methods of Implementation

Rules	Rules identify circumstances in which resource consents will be required to commence or continue discharging domestic wastewater to land. All new on-site domestic wastewater discharges will require discharge permits. Policies 14.4.1.1.2 to 14.4.1.1.9 will assist the Council to determine the significance of the effects that the discharge could potentially create and therefore whether the discharge permit should be granted.
Monitoring/ Enforcement	Compliance with the conditions of resource consents will be monitored and enforcement action taken where necessary.
Guidelines	The Council has prepared guidelines to assist industry practitioners to assess the characteristics and constraints of any particular site relevant to the on-site management of domestic wastewater.
Training	The Council will establish an accreditation system for the design of on-site wastewater management systems, and practitioners will be required to hold such accreditation to submit on-site system designs to the Council. A pre-cursor to accreditation will be the completion of appropriate training courses in site and soil evaluation.
Liaison	The Council will establish a working group of industry practitioners in order to provide a forum to discuss issues associated with site investigation, and the design and installation of on-site wastewater management systems. This working group can consider particular issues and provide advice on ways in which current management can be improved.
Investigations	The Council will investigate the availability and practicality of alternative technologies for the management of on-site wastewater management systems and the potential to use these technologies in the Marlborough Sounds.
Information Sharing	There are a range of on-site wastewater management systems available. Some on-site systems are more suited to certain conditions than others, and the maintenance requirements also vary. The Council will share this information with homeowners.
Standards	The Council will use current standards to help assess the appropriateness of new on-site wastewater management systems through the resource consent process

*Plan rules allow the appropriateness of any new on-site wastewater management system to be assessed. This assessment is necessary to ensure that the domestic wastewater can be effectively contained and treated on-site, and adverse effects on the surrounding environment thereby avoided. Standards, such as AS/NZS 1546.1:1998, AS/NZS 1546.2:2001, AS/NZS 1546.3:2001 and AS/NZS 1547:2000, will assist this assessment process.*

*The methods also seek to improve the standard of design through the use of local guidelines. These guidelines will provide practitioners with greater certainty in terms of the procedures to be followed for site investigation and assessment. This, in turn, will assist to ensure that the subsequent design of any on-site system reflects the site characteristics prior to applying for a discharge permit. The use and continual improvement of the guidelines will be facilitated through liaison with practitioners and the provision of appropriate training.*

*The installation and commissioning of on-site systems is to be monitored to ensure that each system is constructed according to the approved design. Enforcement action may be necessary to remedy any instances of non-compliance.*

*The process of continuous improvement will also require the investigation of alternative technologies, as such technologies may allow for improved on-site management of domestic wastewater in the Marlborough Sounds. In the meantime, the Council will provide information on all available on-site wastewater management systems to homeowners to enable them to make informed choices.*

#### 14.4.3 Objective and Policies

Objective 1	To ensure that all on-site wastewater management systems perform in an efficient operating condition on an ongoing basis, while avoiding adverse effects on the surrounding environment.
Policy 1.1	Existing on-site domestic wastewater discharges, which were lawfully established without resource consent prior to 21 April 2005, will continue to be permitted activities providing:  The on-site wastewater management system is maintained in an efficient operating condition at all times; and  The discharge is contained on-site and is not adversely affecting surface water, coastal water or groundwater quality.
Policy 1.2	To monitor the operational performance of all on-site wastewater management systems and to require poorly performing systems to be upgraded to, or be replaced with, systems that effectively treat and contain all domestic wastewater on-site.
Policy 1.3	To require all on-site wastewater management systems to be maintained in an efficient operating condition at all times.
Policy 1.4	To identify and define the impact of factors that influence the performance of on-site wastewater management systems.
Policy 1.5	To promote good practice in the use of on-site wastewater management systems.

Policy 1.6	To improve the community's understanding of the impact of on-site discharges on the surrounding environment.
Policy 1.7	To establish a register to record the details of all on-site wastewater management systems.
Policy 1.8	When considering building consent applications to extend or alter residential or commercial buildings serviced by on-site wastewater management systems, an assessment will be made of the wastewater loading that would result from changes in the occupancy of the building. If there is to be an increase in the loading, then a discharge permit will be required to continue discharging domestic wastewater to land.

*The day-to-day management and ongoing maintenance of on-site wastewater management systems play vital roles in ensuring that domestic wastewater is appropriately treated and contained on-site in the long term. This is because inappropriate use and/or a lack of maintenance can affect the performance of the on-site system. The responsibility for management and maintenance of on-site systems is that of the property owner. The above policies therefore target the important role that property owners play in avoiding the adverse effects of domestic wastewater discharges on the surrounding environment.*

*Given the large number of holiday homes and properties providing visitor accommodation in the Marlborough Sounds, property owners and visitors alike may not be aware of the appropriate methods of using and managing on-site systems. The Council will therefore inform property owners of practical measures they can take to improve the performance of their on-site systems. A good example is the installation of effluent filters into existing conventional on-site systems. These measures may be identified as a result of investigations undertaken by the Council, other councils, the wastewater industry or independent researchers.*

*To reduce the potential for this same situation occurring with any future on-site system, the designer will be required to prepare and submit operation and maintenance guidelines when applying for a discharge permit. Property owners installing proprietary advanced on-site systems are usually required to enter into a maintenance contract by the supplier or installer. The Council will make this a requirement for all such on-site systems through the resource consent process.*

*A lack of maintenance increases the risk of system failure and creates the potential for adverse effects on the surrounding environment. However, property owners may not be aware of the need to desludge septic tanks, others may forget or, given the isolated nature of many parts of the Marlborough Sounds, desludging may be problematic.*

*Even where the on-site system is properly used and well maintained, it could still be performing in an inappropriate manner. This could be as a result of a lack of maintenance by previous owners, an increase in domestic wastewater loadings, or may reflect that the original on-site system was inappropriate given the site characteristics. Examples of poor performance include the land treatment area failing, resulting in the ponding and/or runoff of domestic wastewater, owners modifying the on-site system to discharge directly to a waterbody, offensive or objectionable odour and the leakage of domestic wastewater from the septic tank.*

*It is therefore necessary to monitor the operational performance of all on-site systems in the Marlborough Sounds and require remedial action where the systems are poorly performing.*

*Many buildings in the Marlborough Sounds started as simple baches serviced by conventional on-site systems that reflected the scale and occupancy of the building. There is an increasing tendency to modernise and/or extend these structures. If more people can be accommodated in the buildings(s) following these changes, even if only for a short period, then the wastewater loading and rate of discharge will also increase. A discharge permit will be required to continue discharging domestic wastewater to land in such circumstances. This will allow the Council to determine whether the existing on-site system is capable of managing the increased loading and, if it is not, will ensure that the system is either upgraded or replaced with an appropriate system. Policies 14.4.1.1.2 to 14.4.1.1.9 can be used to assist this determination.*

#### 14.4.4 Methods of Implementation

Rules	Rules identify circumstances in which resource consents will be required to commence or continue discharging domestic wastewater to land. Conditions of permitted activity rules (for existing discharges) and resource consents will require all on-site wastewater management systems to be maintained in an efficient operating condition.
Operation and Maintenance Guidelines	The Council will require (through the resource consent process) designers to prepare operation and maintenance guidelines for all new on-site wastewater management systems. These guidelines should then be submitted to the Council and, more importantly, to property owners.
Service Contracts	The Council will require (through the resource consent process) property owners installing proprietary advanced on-site wastewater management systems to enter into service contracts with the manufacturer.
Monitoring	<p>The performance of on-site wastewater management systems will be monitored to ensure compliance with the minimum standards established by the Plan and/or resource consents. When determining whether an existing on-site wastewater management system is poorly performing, regard will be had to:</p> <ul style="list-style-type: none"> <li>(a) The age and type of system;</li> <li>(b) The structural integrity of the treatment unit and the water-tightness of all components of the system;</li> <li>(c) Whether domestic wastewater is saturating soil or ponding within, or in the vicinity of, the land application area;</li> <li>(d) The proximity of the land application area to any waterbody;</li> <li>(e) Whether the discharge from the system is initiating instability or making existing instability worse;</li> <li>(f) Any offensive or objectionable odour;</li> </ul>

	(g) The past maintenance of the system; and (h) The conditions of any relevant permitted activity or resource consent.
Enforcement	Where an on-site wastewater management system is failing to treat and/or contain domestic wastewater on the subject property, action can be taken under the Building Act 2004 and/or the Resource Management Act 1991. The action will require the discharge to cease or remedial measures to be taken to rectify the problem.
Septic Tank Pump-out	The Council will investigate options for co-ordinating the pump-out of septic tanks throughout the Marlborough Sounds, including the appropriate disposal of septic tank sludge.
Investigations	The Council will review existing technical information and undertake research, where necessary, to determine the factors that influence the performance of on-site wastewater management systems.
Information Collection	The Council will collect information on existing on-site wastewater management systems in the Marlborough Sounds. This information will be stored on a database, which can then be used as the basis of implementing a number of the other methods identified in this chapter. The database will also store information on new on-site systems authorised through resource consent processes.
Information sharing	Education is a vital tool in improving the performance of existing on-site wastewater management systems and ensuring new on-site wastewater management systems are managed effectively. The Council will provide property owners and servicing agents with details on the factors that affect the performance of on-site systems and outline appropriate operation, maintenance and monitoring procedures for all on-site systems.
Liaison	The Council will establish a working group of industry practitioners and other relevant parties in order to provide a forum to discuss issues associated with the ongoing performance of on-site wastewater management systems. This working group can consider particular issues and provide advice on ways in which performance can be improved.

*The methods focus on means of improving the performance of existing on-site wastewater management systems and ensuring that future on-site systems perform according to design.*

*The Plan recognises that the day-to-day use and ongoing maintenance influence the performance of on-site systems in the long term. From this perspective, the Council will require the designers of new on-site systems to specify, and provide to the property owner, the appropriate procedures for operating the system. The Council will also provide relevant information to property owners, so that they can act to appropriately manage and maintain their on-site systems where no*



*such procedures exist. This information will be provided to the community on an ongoing basis, to ensure that it reflects the current knowledge of factors that influence the effectiveness of on-site systems.*

*However, it is also recognised that the provision of information and voluntary actions alone will not ensure that property owners appropriately manage and maintain their on-site systems. For example, there is a low rate of septic tank pump-out in the Marlborough Sounds despite the fact that the performance of the septic tank relies upon the periodic removal of the accumulated solids. The isolation of some properties, the inability of contractors to access the septic tank by road or barge, the variable rates of accumulation caused by intermittent use of the dwelling and the cost all act to inhibit appropriate septic tank maintenance. For this reason, the Council will investigate options for co-ordinating the pump-out of septic tanks throughout the Marlborough Sounds, in consultation with the community. Monitoring results may identify priority areas for the implementation of any such programme.*

*If a programme of co-ordinated septic tank pump-out is implemented it must also address the subsequent disposal of the sludge that is removed. Given the isolation of many properties in the Marlborough Sounds and the fact that the Council does not accept septic tank sludge at the Picton Sewage Treatment Plant, a strategy needs to be developed to address this issue. The successful implementation of this regime will also require the details of all on-site systems to be recorded. Liaison with property owners may be necessary to determine the nature and location of any on-site system.*

*There will also be situations where the existing on-site system is not performing at optimal levels despite appropriate use and recent maintenance. Such a situation may result in adverse effects on the surrounding environment and remedial action will be required if this is the case. Any alleged instance of poor performance, as indicated by complaint or state of the environment monitoring, will be followed up with a site inspection.*

## 14.5(a) Issue

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Several communities in the Marlborough Sounds suffer from a degraded environment and a potential risk to public health due to their reliance on the on-site management of domestic wastewater.

Residential activity in the Marlborough Sounds, outside of urban areas, is usually concentrated along the coastal fringe. The resultant density of development is lower than that which exists in urban environments. However, there are areas in the Marlborough Sounds where this is not the case, and communities have developed that are almost urban in character. These communities include, but are not limited to:

- Okiwi Bay
- Ngakuta Bay
- Double Cove
- Anakiwa/Tirimoana
- Moenui

The residential properties in these areas are the result of historic subdivision practices. These communities are not serviced by reticulated sewerage systems and the process used to approve the subdivision of land often did not take into account the land area required for the effective on-site management of domestic wastewater. As a result, many of the on-site wastewater management systems installed to service residential buildings were inappropriate given the site conditions. For example, soak pits were commonly installed (in soils of low permeability) to service older residential developments.

Many of the on-site systems initially installed in these communities have either subsequently failed, and have had to be upgraded or replaced, or continue to perform in a less than satisfactory manner. This is reflected in the results of water quality and shellfish monitoring, which show contamination of coastal waters. Additionally, complaints have been made about offensive and objectionable odour and the runoff of domestic wastewater onto neighbouring properties. Given the residential character of these communities, there may also be an increased risk of people coming into contact with untreated or partially treated sewage.

The nature and extent of the effects on the surrounding environment and on public health need to be accurately assessed. It may be established that these communities are unsustainable in the absence of a community sewerage system.

## 14.5(b) Issue

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**The subdivision of unsewered land for residential use can create a development density that exceeds the capacity of individual allotments to assimilate domestic wastewater in a manner that protects the surrounding environment.**

There is a demand for further residential properties in the Marlborough Sounds, and the Council continually receives applications for resource consent to subdivide land, currently zoned either Sounds Residential or Rural One, for residential purposes. In the absence of reticulated sewerage, all of the newly created allotments are serviced by on-site wastewater management systems.

However, on-site systems may not necessarily be the most appropriate means of servicing the subdivision due to the site conditions, and even where they are, if the development does not take into account the land area required for the effective on-site management of domestic wastewater, the resultant properties could be too small for this purpose. Where the density of development is such that multiple residential buildings are unable to treat and contain the domestic wastewater on-site, the adverse effects identified in Issue 14.5(a) can result. In this manner, additional subdivision and development can exacerbate existing problems or can create further communities that are unsustainable in terms of on-site management of domestic wastewater.

### 14.5.1 Objective and Policies

Objective 1	To ensure that the management of domestic wastewater, associated with residential subdivision and development, does not adversely affect the surrounding environment.
Policy 1.1	For the subdivision of land zoned Rural or Sounds Residential, where the allotments to be created are to be used for residential purposes, the option of on-site domestic wastewater management shall be evaluated against off-site alternatives and the best practicable option shall be adopted.
Policy 1.2	To ensure that, where on-site management of domestic wastewater is proposed, subdivision layout, allotment size and dimensions make adequate provision for land treatment areas and reserve areas.
Policy 1.3	To provide guidance on appropriate procedures for the investigation and evaluation of land for the on-site management of domestic wastewater.
Policy 1.4	To avoid any further residential subdivision that would create allotments of less than 4000 square metres in those areas of Okiwi Bay and Ngakuta Bay zoned Sounds Residential, until a community sewerage scheme is established.
Policy 1.5	To establish the performance of on-site wastewater management systems on individual allotments, and to assess the environmental effects of the on-site management of domestic wastewater at key localities, including: <ul style="list-style-type: none"> <li>(a) Okiwi Bay</li> <li>(b) Ngakuta Bay</li> <li>(c) Double Cove</li> <li>(d) Anakiwa/Tirimoana</li> <li>(e) Moenui</li> </ul>

*The subdivision of land is a process of identifying and setting aside, legally and physically, parcels of land for specific development, including residential development. It is important that all proposed residential allotments can be serviced in a sustainable manner, including the management of domestic wastewater. If this is not achieved, the community expectations reflected in objectives elsewhere in this Plan, in terms of water and soil quality, natural hazards and residential amenity values, will not be achieved.*

*It is therefore important that the best method for avoiding or mitigating the adverse effects of domestic wastewater discharges is selected. Developers need to consider and assess all available alternatives for managing domestic wastewater. On-site management is the obvious option where there is no sewerage system available, but shared or offsite options may also exist and should be evaluated. These include:*

- *On-site cluster systems (applying on-site technology to service two or more dwellings);*
- *Cluster systems (also serving two or more dwellings, but where the subsequent discharge is to an off-site environment); and*
- *Full community sewerage schemes.*

*The best practicable option can then be determined having regard to:*

- *The sensitivity of the receiving environment;*
- *The financial implications, and the effects on the environment, of each option when compared with the other options; and*
- *The current state of technical knowledge and the likelihood that each option can be successfully applied.*

*(Policies 14.4.1.1.3 to 14.4.1.1.9 are also all relevant to such an assessment.)*

*If the best practicable option is an on-site option, it is still important that the actual size and configuration of the allotments allows for effective land treatment areas to be developed. This must include reserve areas to safeguard against unanticipated problems or future failure of the land application area. Soil and other site conditions can also vary across each of the proposed allotments, so the land treatment area and reserve area must be located on the most suitable soils and topography for on-site management of domestic wastewater. The Council will provide guidance on how these areas can be determined. In this manner, Policies 14.5.1.1 to 14.5.1.3 will assist to achieve a density of development that is consistent with the capacity of the surrounding environment to assimilate domestic wastewater.*

*In most cases it will not be possible to apply for the discharge permits required for each of the allotments at the same stage as the subdivision consent. This is because the nature of the dwellings to be built upon the allotment, the resultant wastewater loading and therefore the size of the land treatment area are not known. None-the-less, the applicant will still need to demonstrate that a dwelling is capable of being serviced on each of the proposed allotments.*

*In some cases, past subdivision of land has already created a development density that is not sustainable in the absence of some kind of community sewerage system. This is considered to have occurred in Okiwi Bay and Ngakuta Bay, where allotment sizes are typically between 800 and 1000 square metres. Water quality and shellfish monitoring has demonstrated that domestic wastewater discharges are probably not being contained within these allotments. There is still a substantial area of land zoned Sounds Residential that is yet to be subdivided into residential allotments in these two bays. It is considered to be inappropriate to allow for further residential allotments of a similar character to those that already exist, when the existing level of development is already adversely affecting the surrounding environment.*

*The Council also needs to establish whether past residential subdivision and development is now adversely affecting coastal water quality, soil quality, land stability or residential amenity values elsewhere in the Marlborough Sounds.*

## 14.5.2 Methods of Implementation

Rules	<p>The subdivision of land is regulated through rules in Volume Two of this Plan. The rules establish minimum lot sizes that provide sufficient area to provide for effective land application areas.</p> <p>Applications for subdivision consent involving on-site management of domestic wastewater are to be supported by detailed assessments of the capacity of the land to provide land treatment areas and reserve areas within the proposed lot size, configuration and dimensions. This information shall be supported by confirmation that on-site management is the best practicable option, compared to the alternatives of on-site cluster, cluster and community sewerage schemes.</p>
Guidelines	<p>The Council has prepared guidelines to assist industry practitioners to assess the characteristics and constraints of sites subject to the proposed subdivision of land relevant to the on-site management of domestic wastewater.</p>
Other legislation	<p>The Council is required to periodically assess wastewater services, including risks to the community where there is an absence of a community sewerage system, under the Local Government Act 2002.</p>
Investigations	<p>Monitoring already undertaken has identified areas in the Marlborough Sounds where on-site domestic wastewater discharges are potentially degrading coastal water quality. These areas include:</p> <ul style="list-style-type: none"> <li>• Okiwi Bay</li> <li>• Ngakuta Bay</li> <li>• Double Cove</li> <li>• Anakiwa/Tirimoana</li> <li>• Moenui</li> </ul> <p>The Council will undertake investigations to identify and establish the scale and severity of these adverse effects. These investigations will include sanitary surveys. Expansion of investigations may occur where monitoring indicates the need.</p>
Monitoring	<p>The Council will continue to monitor water and shellfish quality in the Marlborough Sounds, but will expand its programme to include areas adjacent to established residential (including bach) activity that have not been monitored previously.</p>

*All subdivision of land zoned Sounds Residential, Rural One or Rural Two for residential purposes requires resource consent. The rules in Volume Two of the Plan set minimum allotment sizes that, in most cases, will provide sufficient land area for the on-site management of domestic wastewater.*

*The requirement for resource consent will allow an assessment of the appropriateness of the proposed method of servicing each of the allotments and, where the proposal does not comply with minimum allotment sizes, whether each of the allotments is an appropriate size and configuration for effective on-site management of domestic wastewater.*

*The methods also seek to improve the standard of subdivision servicing through the use of local guidelines. These guidelines will provide practitioners with certainty in terms of the procedures to be followed to investigate the suitability of land for the on-site management of domestic wastewater.*

*The Council already monitors recreational waters for bacterial contamination on an annual basis. However, the sampling is restricted to beaches used for recreational purposes and although the results generally indicate the suitability of the monitored waters for contact recreation, they do not necessarily provide an indication of the impact of on-site discharges on coastal water quality. For this reason, the monitoring programme will be extended to include sampling of coastal waters adjacent to areas of established residential activity. Shellfish will also be sampled as, being filter feeders, bacteria tend to accumulate in the flesh (shellfish can therefore provide a better indicator of bacterial contamination than water samples).*

*The Council has to consider the risk to the community of not providing wastewater services under the Local Government Act 2002. This may require investigations to be conducted to evaluate the current level of risk to community health as well as the surrounding environment. Where those risks are found to be significant, the construction and operation of community sewerage systems may need to be considered in order to ensure sustainable outcomes. The Council could also utilise other methods identified in this chapter, such as requiring systems to be upgraded or replaced.*

## 14.6 Anticipated Environmental Results

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Implementation of the policies and methods for managing discharges to land will result in:

- Surfacewater and groundwater quality improved in those areas where it is currently being adversely affected by the burial of solid waste;
- The waste stream being reduced and poorly managed landfills closed. Waste from transfer stations carried to the engineered and appropriately managed site in Blenheim;
- Soil contamination reduced and land ecosystems protected through the control of the burial of solid waste, discharge of treated and untreated liquid waste and agricultural effluent;
- Amenity values being protected through the control of dumping of solid waste;
- The reuse of valuable resources being encouraged and the waste stream being reduced;

- Amenity values being protected through improved control of the storage and transfer of materials, including waste;
- Surfacewater quality improved through control of the storage and transfer of materials, including waste;
- Groundwater quality improved through control of the storage and transfer of materials, including waste; and
- Soil contamination reduced and land ecosystems protected through control of the storage and transfer of materials, including waste.

