



## **WAIRAU/AWATERE RESOURCE MANAGEMENT PLAN**

**Proposed Plan Change No. 58:  
Use of wind machines for frost protection**

## **MARLBOROUGH SOUNDS RESOURCE MANAGEMENT PLAN**

**Proposed Plan Change No. 23:  
Use of wind machines for frost protection**

REPORT PREPARED TO FULFIL THE REQUIREMENTS OF  
SECTION 32 OF THE  
RESOURCE MANAGEMENT ACT 1991



# TABLE OF CONTENTS

INTRODUCTION.....	3
Section 32 requirements .....	3
Structure of this report.....	4
<b>PART A: ISSUE IDENTIFICATION .....</b>	<b>5</b>
Background .....	5
Steps taken to address concerns.....	8
Comments received on Mr Maassen’s report .....	9
Comments received on draft rule changes .....	9
<b>PART B: LEGISLATIVE FRAMEWORK.....</b>	<b>11</b>
Resource Management Act.....	11
Purpose of the Resource Management Act .....	11
Council’s functions .....	11
Marlborough’s Resource Management Documents .....	11
Marlborough Regional Policy Statement.....	11
Wairau/Awatere and Marlborough Sounds Resource Management Plan .....	12
Summary of resource management plan provisions .....	16
<b>PART C: SECTION 32 EVALUATION .....</b>	<b>17</b>
Evaluation of options.....	17
Risk of acting or not acting.....	24
<b>CONCLUSION .....</b>	<b>24</b>
<b>APPENDIX 1: SCHEDULE OF PROPOSED CHANGES.....</b>	<b>26</b>
Wairau/Awatere Resource Management Plan.....	26
Volume Two .....	26
Definitions.....	26
Rural 3 and 4 Zones.....	26
Rural Residential Zone.....	27
Appendix K Marlborough Ridge Zone .....	28
Marlborough Sounds Resource Management Plan.....	30
Volume Two .....	30
Definitions.....	30
Rural 1 and 2 Zones.....	30

## INTRODUCTION

---

This report sets out the evaluation behind a decision of the Marlborough District Council (the Council) to change both the Wairau/Awatere Resource Management Plan and the Marlborough Sounds Resource Management Plan (the Plans) in respect of the rules that control the use of wind machines for frost protection.

Wind machines for frost protection have become relatively commonplace around the Wairau and Awatere Plains with the conversion of large areas of pastoral land to viticulture. In contrast in the Sounds Plan area there are currently no wind machines erected for the use in frost protection. This is not surprising given that very little in the way of grapes is grown in this area. Notwithstanding this it is proposed that changes will be undertaken to both resource management plans as both contain similar rules that govern the use of wind machines.

These machines are currently allowed as a permitted activity in the Plans subject to meeting certain standards. However, there have been ongoing complaints in relation to noise from the machines operating during the night affecting the ability of residents in neighbouring dwellings to sleep.

In considering these complaints a number of issues have been highlighted with the current rules that provide for wind machines as a permitted activity. These include:

- Landowners cannot demonstrate compliance with the noise standards before the wind machines are erected.
- The nature of wind machines being a permitted activity means that it is difficult for the Council to be able to require a user of these machines to monitor the noise being generated.
- Doubt over whether all wind machines produce special audible characteristics, which in turn raises doubt about whether a more stringent noise level should be applied.
- The distance at which noise from wind machines should be measured.

The Council does not consider the Plans are currently effective to manage these issues. The proposed changes are therefore intended to remove the permitted activity status and introduce a new rule making the erection and use of wind machines for frost protection a controlled activity (subject to standards and conditions).

It is important to note the changes proposed to the Plans are limited in extent. Essentially the changes proposed will enable the Council to be able to more effectively gather information about the noise generated by wind machines. Once more information is available about the noise generated by these machines then the Council will be in a position to determine if there should be more substantive changes made to the Plan controlling the use of wind machines for frost protection.

One of the changes being proposed to the Plans is how wind machines for frost protection are referred to. The Council is proposing to refer to these machines as 'frost fans'. For this reason the term 'frost fan' will be used throughout this section 32 report.

### Section 32 requirements

In notifying any change to a plan, the Council has a duty under section 32 of the Resource Management Act 1991 (RMA) to evaluate a number of matters.

The section 32 process of the RMA assists in ensuring that good environmental outcomes are achieved, plan provisions are targeted at achieving the purpose of the RMA by the most appropriate methods, there is sound policy analysis to base decisions and for reassessing whether the chosen provisions are necessary and appropriate once they are in use. An evaluation under section 32 has to be carried out before the Council publicly notifies the proposed change and then again before making a decision on

submissions received. A section 32 evaluation must examine the extent to which each objective is the most appropriate way to achieve the purpose of the RMA and whether the proposed policies, rules<sup>1</sup> or other methods are the most appropriate way in which to achieve the objectives in terms of their efficiency and effectiveness.

It must also take into account the benefits and costs of policies, rules, or other methods, and the risk of acting or not acting if there is uncertain or insufficient information.

This report fulfils the requirements of section 32(5) RMA in terms of summarising the evaluation undertaken.

## Structure of this report

Part A: Issue identification, including background, investigation and analysis of the issues and public consultation.

Part B: A summary of the legislative framework, within which resource and environmental issues are currently managed.

Part C: An evaluation under section 32, as required under the RMA, of the actual changes proposed to the Plans.

The proposed schedule of changes that will occur to the Plans through this plan change are attached as **Appendix 1**.

---

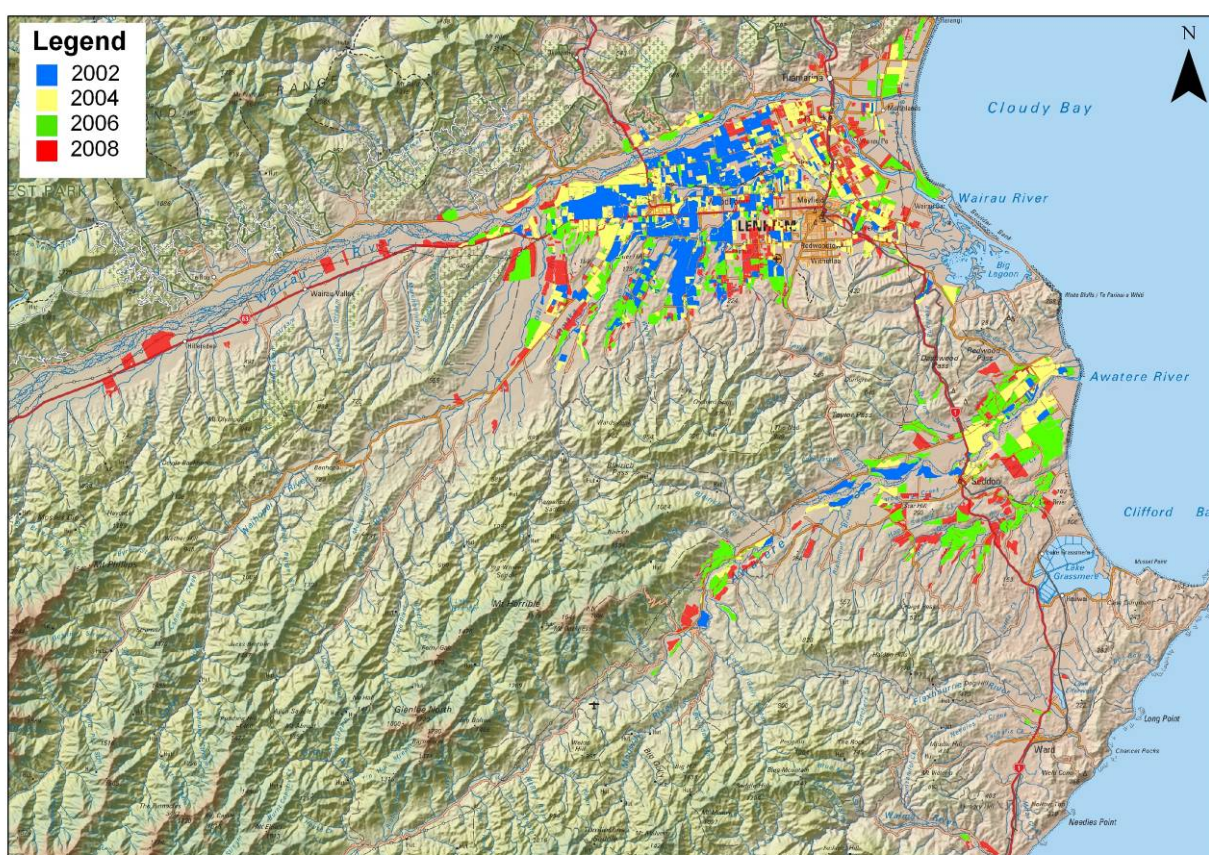
<sup>1</sup> For the purposes of Plan Change 58, no objectives or policies in the Plan are being proposed to be changed, only the rules.

## PART A: ISSUE IDENTIFICATION

### Background

Over the last 30 years the Marlborough wine industry has established an international reputation for producing consistently high quality wines. It is therefore not surprising that the viticulture industry has grown rapidly with rural land being readily converted to viticultural production. Up until about 2001 the industry and the planting of vines had been growing at a steady pace. However, in 2001 the conversion of land to viticulture, accelerated rapidly with large areas of pastoral and horticultural land being converted.

To show the extent of the growth of the vineyards, Figure 1 shows the incremental additions of vineyards at two yearly intervals from 2002 through until 2008. The most recent survey undertaken by the Council of land planted in grapes shows that as at June 2009, 23810 hectares of land were planted. A further 391 hectares of land was being made ready for planting.



**Figure 1: Changes in land area planted with grapes**

Grapes have been planted in areas having an increased likelihood of frost occurring at critical growing periods. However, even in areas where one would not normally expect large numbers of frost days, growers are using a variety of methods to protect grapes from frost including by frost pots, water sprinklers, frost fans and helicopters. These methods are also used for the protection of other horticultural crops throughout New Zealand including for apples, cherries and kiwifruit.

Frosts in Marlborough are mostly radiation frosts that occur during a cool night after a clear, fine day. A low-lying layer of cold air does the damage, but is overlaid by a layer of warmer air. In some areas frost events are more likely at the start and end of a growing season when seasons change but they can also occur during the growing season.

Frost fans or helicopters are used to mix the warm upper air through the cold air, thus raising the temperature in the vineyard and protecting the young flowers, fruit and shoots from frost. However, with the growth in number of fans being installed over the past 10 years, there has been increasing concern about the level of noise produced. Concerns have been mostly from those living within rural areas as there is a significant increase of about 30 decibels in ambient, or background noise, during frost events when frost fans are used.

A substantial number of frost fans are now evident throughout the Wairau and Awatere Plains. A rise in the number of frost fans being erected occurred after significant frost events in 2003 when yields were severely affected by frosts. The location of frost fans is shown in Figure 2 and the cumulative growth in numbers of fans is shown in Figure 3.

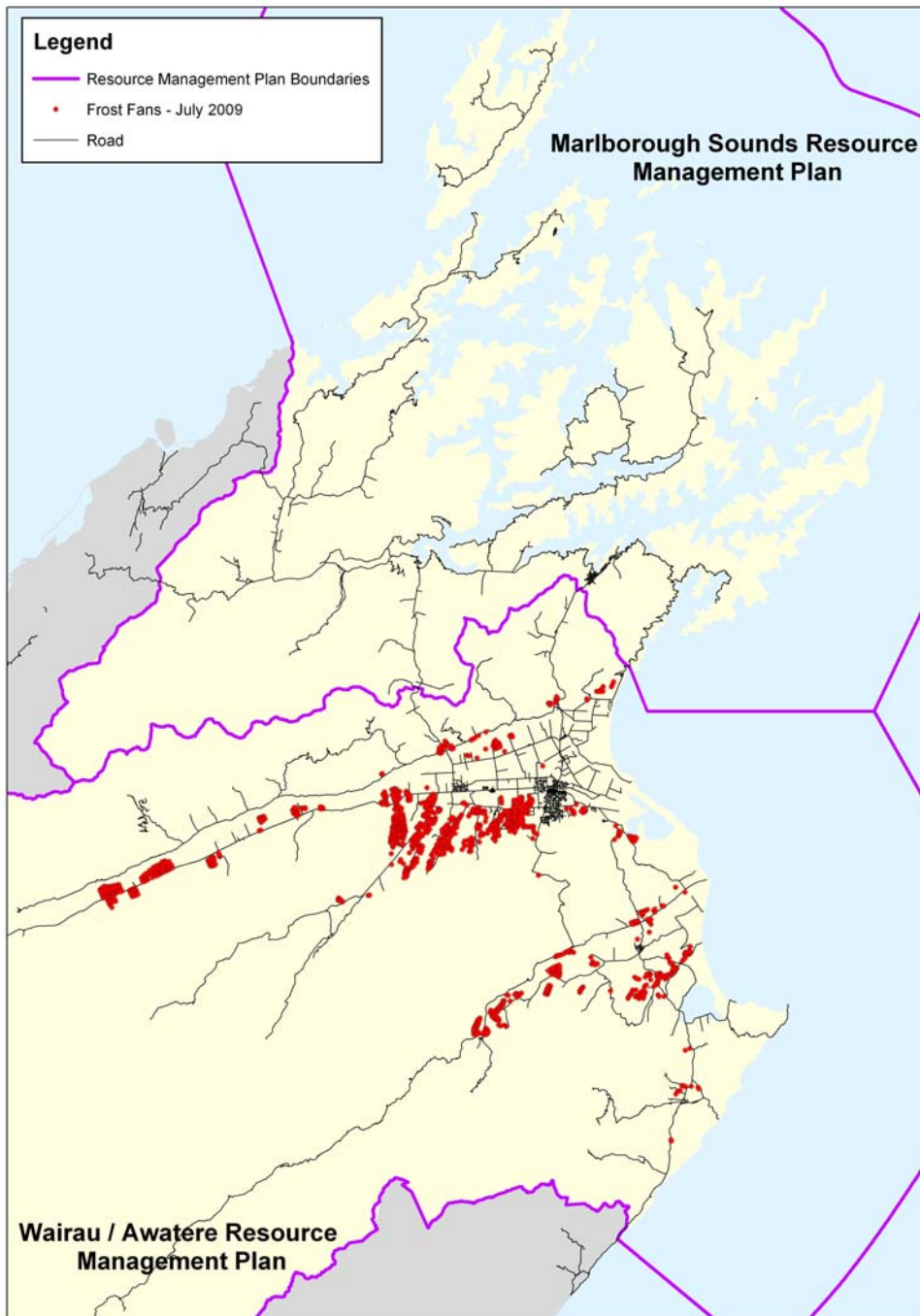
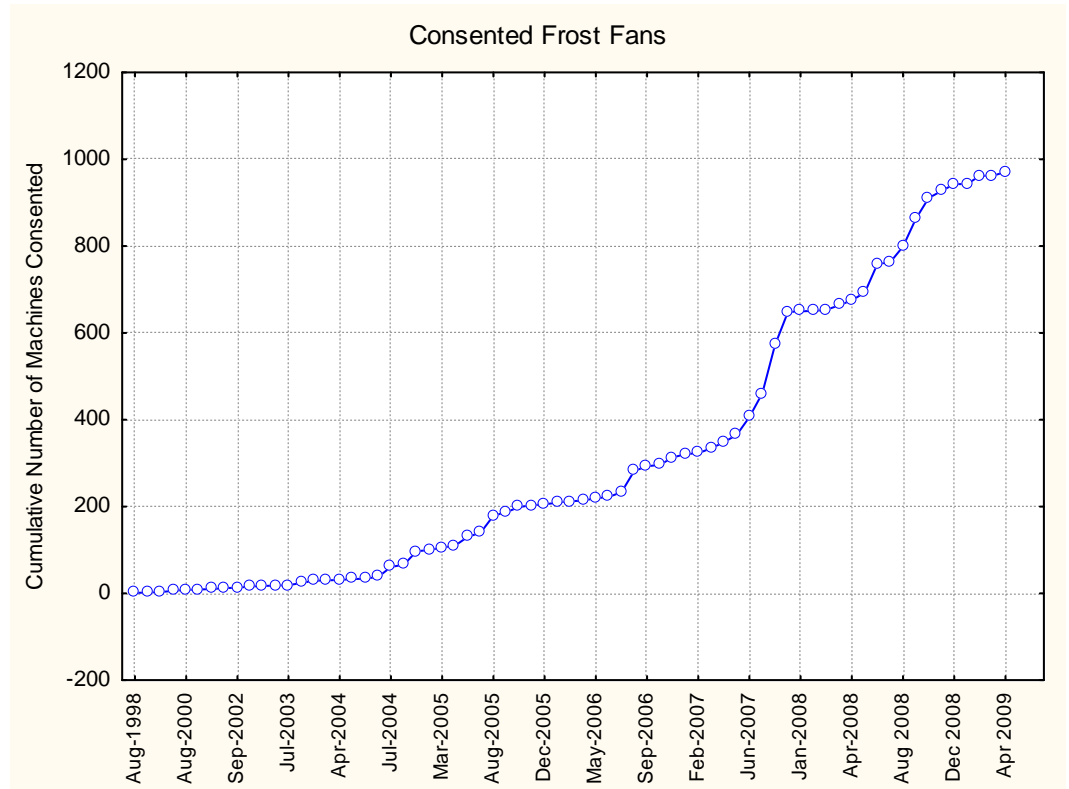


Figure 2: Location of frost fans in Marlborough

**Figure 3:**  
**Cumulative number of frost fans in Marlborough (note the reference to consented frost fans is in terms of building consents under the Building Act)**



Very specific noise issues have arisen as a result of the numbers of frost fans now present in Marlborough’s grape growing areas. This stems in part from where grapes have been planted, growers wanting to protect their investment and also because people want to live in rural areas. The use of frost fans in the last four years particularly, has given rise to a number of complaints to the Council and to the Office of the Ombudsman about the noise from the machines operating during the night affecting the ability of residents in neighbouring dwellings to sleep. Recorded numbers of complaints made to the Council relating to the use of frost fans (together with in some cases the use of helicopters) for frost protection are shown in Table 1.

Year	Number of complaints
1998	1
1999	1
2000	1
2003	1
2004	7
2005	2
2006	3
2007	2
2008	10

The noise from both frost fans and helicopters has been the subject of complaints as with both operating during the night, the ability of residents in neighbouring dwellings to sleep has been affected. The use of helicopters for controlling frost in vineyards is unable to be controlled to any significant degree by the Council. Section 9(8) of the RMA does not allow the Council to control overflying aircraft and specifically states that controlling uses of land in terms of section 9 shall be limited to any noise emission controls that may be prescribed by a territorial authority in relation to the use of airports.

Noise associated with helicopter landing areas can be controlled by the Council however, once a helicopter is aloft it is no longer able to be within the control of the Council - instead this is the responsibility of the Civil Aviation Authority.

**Table 1: Number of complaints recorded on Marlborough District Council’s complaints database about noise from frost fans**



## Steps taken to address concerns

The Council convened a workshop in January 2008 in response to issues about whether the use of frost fans in vineyards was meeting the permitted activity standards in the Wairau/Awatere Resource Management Plan. The aim of the workshop was to explore directions regarding the future management of frost fans.

The workshop was attended by Councillors, Council staff, frost fan manufacturers and suppliers, viticulture industry representatives and property owners who have raised issues about noise effects. Doctor Phillip Dickinson, Professor of Acoustics, Massey University was invited to address health effects of noise from frost fans and to provide some possible approaches to mitigation.

A code of practice was being developed by New Zealand Winegrowers at the time and this was to focus on best practice for operating frost fans. It was agreed that the code would be a useful tool to assist in the education of growers. The viticulture industry would take responsibility for the implementation of the code of practice.

The existing provisions in the Wairau/Awatere Resource Management Plan for frost fans were discussed. There are issues with monitoring compliance with the noise conditions being too difficult to enforce, because they relate to one fan, and the reality is that often there is more than one fan operating at the time of assessment.

Following on from this, the May 2008 meeting of the Environmental Policy Committee agreed to investigate and review the current provisions of the Wairau/Awatere Resource Management Plan through a working group.

A working group, based on the attendees to the first workshop, met in October 2008, to consider the noise effects of frost fans on residential property owners and to consider potential changes to the Wairau/Awatere Resource Management Plan on how frost fans should be controlled. Of particular concern was how to more effectively monitor potential effects of the fans. A discussion document was prepared prior to the workshop that contained options for the future ranging from doing nothing (i.e. leaving the Plan as it was) through to making the use of frost fans for frost protection a prohibited activity.

At the conclusion of the workshop, it was agreed that the workshop facilitator, John Maassen, would analyse the issues and suggest steps that might be implemented to address the issues. A report from Mr Maassen was subsequently received by the Council in March 2009 and this was sent to the workshop invitees.

Amongst the core recommendations from Mr Maassen's analysis was the following:

- There needs to be a forensic enforcement/monitoring methodology developed by the Council and implemented to identify in at least two key 'hot spots' the scale of the alleged problem including its frequency and duration.
- The permitted activity rule in the Plan should be changed promptly so that:
  - (a) Classification of the activity of constructing and operating frost fans is at least a controlled activity to enable the imposition of conditions that provide for effective monitoring by the Council; and
  - (b) The noise performance standard is 55dba and no other penalty under NZS6802:1991 for special audible characteristics applies.

The reason for the first recommendation was that Mr Maassen found the Council is in a difficult position in terms of establishing compliance with the permitted activity standards, due to the difficulties isolating the effects of single machines. Without knowing the effects of individual machines it is difficult to then determine what the extent of cumulative effects are.

The report further recommended that any other changes to the Wairau/Awatere Resource Management Plan in terms of status or further limiting use of frost fans should only be undertaken at a later date once

results from the forensic monitoring had been analysed and shared with the community. Effectively this process is a two stage one: one to gather information through monitoring of resource consents; and then secondly analysis of that information to help determine whether there should be more significant changes to the Plan, including if there should be changes to objectives and policies of the Plan.

The report of Mr Maassen was sent to participants in the workshop for feedback. Comments were received, some being quite detailed.

### **Comments received on Mr Maassen's report**

There was agreement from wine grower representatives that forensic monitoring should occur. However, there was not support for making any changes to the rules for frost fans until the monitoring had occurred. In the view of the winegrowers, to do so would result in a significant risk that the new rules would not be based on sound evidence and would be unduly restrictive and costly to growers. Winegrower representatives also considered that a wider review of rural amenity, which takes into account the specific circumstances in which frost fans are used, should be carried out as part of any review of the provisions for frost fans.

A response from a frost fan supplier provided clarification on some of the technical aspects of the report.

The Public Health Service of the Nelson-Marlborough District Health Board provided comments from a technical perspective of assessing and measuring noise. Although the Board's response criticised the report as lacking a substantial technical assessment, it essentially supported the direction and core recommendations of the report.

Landowners also responded to Mr Maassen's report providing some very detailed submissions. Like others who responded to the report, there was agreement with some aspects but disagreement on others. Several of the major points to come from landowners included the following:

- There needed to be a cumulative boundary noise limit at night in rural areas.
- Rule changes should affect all existing machines not just those erected after the rules are introduced.
- Measuring structural vibration in houses that is caused by frost fans should be an area of further investigation.

In considering Mr Maassen's report and the responses received from workshop participants, the Environmental Policy Committee decided the following in June 2009:

*That the Committee adopt the two recommendations of the report that:*

- *(At para 4) A forensic enforcement/monitoring methodology be developed; and*
- *(At para 5) The preparation of a plan change to change the status of wind machines from a permitted activity to a controlled activity.*

Work has commenced on both parts of the recommendation. A draft set of rules to change the status of frost fans from permitted to a controlled activity status has been developed and was circulated briefly to workshop participants for informal comment.

### **Comments received on draft rule changes**

Landowners commented that the draft rules have to be applied in a cumulative context as otherwise there is no point to the rules. However, the Council in proposing the draft rules did not focus on cumulative effects as the forensic monitoring proposed, along with information to be gathered through the requirement for resource consents for frost fans, will address these effects. Other comments included:

- The rules do not cover safety aspects regarding potential failure of frost fans and the separation distances from dwellings should therefore be greater.
- The requirement for 30dBA to be achieved in dwellings should be applied to all houses, not just new ones and should also be applied to houses on properties where a frost fan sits.
- One landowner queried a situation where a bedroom was proposed to be added to a house, did the whole house have to be treated to meet the 30 dBA or just the new bedroom.

The issue about safety of frost fans and the potential for catastrophic failure of the fans and the effects this may have on nearby dwellings has not been addressed through this plan change. Although these concerns are real for landowners, the focus on this plan change is to address noise issues.

A frost fan supplier commented that its 4 bladed fans could meet the 55dBA standard proposed at 300 metres. However, the supplier highlighted concerns over having to meet the standard at the notional boundary of a dwelling that was built close to a boundary, say 50 metres. In this case it was considered that a large area of vineyard would be unprotected. Clarification was also sought over the setback rule and whether this could be reduced with the agreement of an adjoining landowner. The nature of conditions to be imposed was also questioned.

New Zealand Winegrowers initial preference was for the existing permitted activity status for frost fans to be retained, although it was acknowledged that some of the standards needed to be updated. However, in recognition that the Council had previously recommended that the status should be changed to controlled, winegrowers commented that such a status would still give certainty to growers if the standards were met (because the Resource Management Act 1991 requires consent to be given to a controlled activity consent). Support in general was given for the draft rules albeit with some suggested modifications. A number of these suggestions resulted in changes to the rules contained in the plan change set out in Appendix 1.

New Zealand Winegrowers requested that the Council include a statement on Land Information Memorandum and Project Information Memorandum advising prospective residents of the likelihood of disturbance from agricultural activities in rural zones. Although this is something the Council may opt to consider in addressing reverse sensitivity issues, it is not something that needs to be part of this plan change.

More discussion about the rules is included in Part C of this report "Section 32 Evaluation".

## **PART B: LEGISLATIVE FRAMEWORK**

---

This first part of the legislative framework describes those parts of the Resource Management Act 1991 relevant to this plan change. The second part of this section of the report describes the relevant planning documents of the Council.

### **Resource Management Act**

#### ***Purpose of the Resource Management Act***

The purpose of the Resource Management Act 1991 (RMA) is to promote the sustainable management of natural and physical resources. Sustainable management means:

*managing the use, development and protection of natural and physical resources in such a way, or at a rate, which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety while-*

- (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
- (b) Safeguarding the life supporting capacity of air, water, soil and ecosystems; and*
- (c) Avoiding, remedying or mitigating any adverse effects of activities on the environment.*

In achieving the purpose of sustainable management, the Council must have regard to a number of principles set out in the RMA. These include recognition and provision for a number of matters of national importance described in section 6 of the RMA. The Council must also have particular regard to matters such as amenity and heritage values, kaitiakitanga, quality of the environment, and ecosystem values (section 7) and take into account the principles of the treaty of Waitangi (section 8).

The RMA enables the use and development of resources as long as such use does not adversely affect the environment in a way that impacts the foreseeable needs of future generations, the life supporting capacity of ecosystems, other users or the environment. This is the concept of “sustainability” which the RMA promotes as its overriding purpose.

#### ***Council’s functions***

The Council’s functions, powers and duties under the RMA are set out in sections 30 and 31 of the RMA. Of most relevance to this plan change are the district functions set out in section 31, particularly in relation to controlling the actual and potential effects of the use, development or protection of land. One aspect specifically mentioned as a function is the control of the emission of noise and the mitigation of the effects of noise (section 31(1)(d)).

### **Marlborough’s Resource Management Documents**

#### ***Marlborough Regional Policy Statement***

The Marlborough Regional Policy Statement (Marlborough RPS) was made operative in July 1995. The MRPS provides a community based vision and direction for the management of the natural and physical resources of Marlborough. The vision and direction sets the framework for more detailed consideration of issues in the Marlborough’s resource management plans.

A review of the Marlborough RPS is currently underway and until this review is completed the existing provisions of the Marlborough RPS continue to apply.

Currently there are five regionally significant issues for Marlborough identified in the Marlborough RPS. These are:

- Protection of water ecosystems;
- Protection of land ecosystems;
- Enabling community wellbeing;

- Protection of visual features; and
- Control of waste.

The issue of most relevance to this proposed change is that of enabling community wellbeing. This section of the Marlborough RPS seeks:

*To maintain and enhance the quality of life of the people of Marlborough while ensuring that activities do not adversely affect the environment; [Objective 7.1.2]*

Two policies that support this objective seek to

*Avoid, remedy or mitigate any adverse effects of activities on the health of people and communities. [Policy 7.1.5]*

and

*Promote the enhancement of the amenity values provided by the unique character of Marlborough settlements and locations. [Policy 7.1.7]*

Methods to implement the first of these policies involves establishing standards in the resource management plans to control environmental noise, amongst other things. Standards are included the resource management plans as previously indicated to control the levels of noise produced from a range of different activities.

The second policy is aimed at defining and then maintaining and enhancing the attributes that make up amenity values of Marlborough's settlements and locations. This also includes protecting the amenity values of rural areas.

Of considerable importance for the viticulture industry Objective 7.1.9 seeks to

*... enable present and future generations to provide for their wellbeing by allowing use, development and protection of resources provided any adverse effects of activities are avoided, remedied or mitigated.*

In explaining this objective the Marlborough RPS states it is fundamental to the existence of the community to be able to produce, process, manufacture, harvest, distribute and retail to extract economic benefit from natural and physical resources. This is qualified by requiring that use and development of resources is to be managed sustainably. Of significance is recognition in the Marlborough RPS that managing use and development of natural and physical resources must involve a level of external direction and control. The intention though is this is to be achieved by guiding resource use and development rather than by controlling through close regulation.

### ***Wairau/Awatere and Marlborough Sounds Resource Management Plan***

In addition to preparing a regional policy statement, the Council's unitary authority status creates an obligation to prepare a coastal plan, a district plan and such other regional plans as are necessary to promote the sustainable management of natural and physical resources. Because of its unitary authority status, the Council has prepared integrated resource management plans that are combined regional, district and coastal plans. Two such plans have been prepared for two distinct parts of Marlborough:

- The area south of the Richmond Ranges is covered by the Wairau/Awatere Resource Management Plan.
- The area north of the Richmond Ranges and including the Marlborough Sounds is covered by the Marlborough Sounds Resource Management Plan.

Aside from an appeal regarding provisions about river flows, the Wairau/Awatere Plan is otherwise operative. That one remaining appeal (in relation to river flows) has no bearing on this current plan change. The Marlborough Sounds Plan is also operative.

## Provisions of the Wairau/Awatere Resource Management Plan

Frost fans are not in themselves listed as a permitted activity in the Plan. Farming, which in terms of the definitions of the Plan includes viticulture, is listed as a permitted activity in the Rural 3 and 4 zones subject to conditions, including specified noise conditions. Where compliance with these conditions is not achieved the need for a resource consent is triggered.

There is a specific noise condition for 'wind machines for frost control' and this currently states:

### 30.1.4.2.3 Wind machines for Frost Control

*Any wind machine used for frost control shall be so constructed and operated that any noise emission measured at a distance of 300 metres shall not exceed 60 dBA L10 provided that:*

- *The wind machine will be allowed to operate during the frost danger period until the leaves of the plant are dry and the air temperature has reached 2°C.*
- *The speed of the wind machine must be governed such that the top speed of the rotor does not exceed the speed of sound.*
- *The wind machine be located no closer than 500 metres to any residential zone, or within 100 metres of a dwelling house not located on the property.*

Appendix K of the Plan provides for a stand alone zone called the Marlborough Ridge Zone. This zone was initially set up to accommodate tourist development, residential living, recreational opportunities and viticultural activity. In anticipation of this last activity a permitted activity standard specifically related to 'wind machines for frost control' is included. This rule differs somewhat from the one for Rural 3 and 4 Zones and states:

## 2.2 Conditions for Permitted Activities.

### 2.2.11 Noise

#### *Wind Machines for Frost Control*

*Noise levels measured at 200 metres from the wind machine shall not exceed 60 dBA provided that:*

- *That the start-up air temperature for the machine should be no higher than 2°C.*
- *That the wind machine be allowed to operate during the frost danger period until the leaves of the plant are dry and the air temperature has reached 1°C.*
- *That the speed of the wind machine must be governed such that the top speed of the rotor does not exceed the speed of sound.*
- *That the wind machine be located no closer than 500 metres to a residential zone.*

Also of relevance for the measurement of noise conditions, the definitions section of the Plan states the following:

#### *Interpretation - Noise Measurements*

*To avoid the necessity of duplicating technical acoustical information, New Zealand Standards relating to acoustics are cited where appropriate within this plan. Except where expressly provided elsewhere in this Plan, sound levels shall be measured in accordance with the provisions NZS 6801: 1991 and assessed in accordance with the provisions NZS 6802: 1991.*

*For the purposes of this Plan the following additional provisions shall limit application of NZS 6802: 1991:*

1. *Adjustments for special audible characteristics, if present, as provided for in clause 4.3 and 4.4, shall apply and will have the effect of imposing a numerical noise limit 5 dB more stringent than those L10 numerical limits stated in the Plan.*
2. *Measurement time intervals as provided for in clause 5.1 shall be limited to 10-15 minutes. Where the noise of interest is cyclic or occurs for time intervals less than 15 minutes in duration, the sample may be less than 10-15 minutes and an average level shall be determined by the method described.*
3. *Where measured noise levels are averaged as provided for in clause 4.5, L10 value shall be determined by an energy average (inverse logarithmic mean) of any four L10 measurement sample*

*time intervals on any day. Sample time intervals must include the sound of interest. The total measurement period should be representative of any variations in the character and range of sound levels for the noise of interest during any period of concern. Such a period may relate to a specific time of day when a noise is alleged to be a problem, or to a particular type of noise source. The total time interval over which measurements for the purpose of determining an average sound level are made shall not exceed four consecutive hours in any 24 hour period including night-time. For steady noise received at a particular location, a period of two hours will usually be adequate if compliance monitoring is the purpose. Where the noise of interest is cyclic and occurs for time intervals less than 15 minutes in duration, the sample intervals may be less than 15 minutes and an average level determined by the same method used elsewhere in NZS 6802: 1991, but at least 10 events should be measured.*

The standards referred to in the Plan are outdated as a new New Zealand standard has been in place since 2008. However, the RMA does not simply allow plans to be updated to reflect new or more up-to-date standards. A formal plan change is required to be gone through. The new noise standards include improved techniques for assessing environmental noise, especially noise with special audible characteristics.

The policy framework for rural activities in the Wairau/Awatere area can be found in Chapter 12 Rural Environments while Chapter 22 contains specific policy about noise.

In looking Chapter 22 first, noise is acknowledged as a normal part of most activities and a necessary part of day to day life. However, the single objective for this chapter seeks to protect individual and community health, environmental and amenity values from disturbance, disruption or interference by noise. Despite this overall objective, there is also a policy that does provide an accommodation for inherently noisy activities in rural areas. This policy states:

*Accommodate inherently noisy activities and processes which are ancillary to normal activities within industrial and rural areas. [Policy 22.3.1.3]*

Explanation for this policy states that because many rural activities involve noisy machinery, some with special audible characteristics of that noise (e.g. birdscaring) and that because of this people living in rural areas have to accept, as part of their lifestyle, reasonable noise from these activities. This does seem to be contradicted somewhat by other explanation that states rural activities cannot operate in such a manner that the amenity values of rural areas are reduced.

The Rural Environments chapter divides rural environments into six discrete areas with objectives and policies for each. In terms of where grapes are grown the three areas relevant to this plan change are objectives and policies for the Wairau Plain, residential activity in the rural environment and the balance of rural land in general including the lower Awatere. (Areas not relevant are rural uplands, skifield area and Lake Grassmere Saltworks.)

Objectives and policies for these three distinct areas do indicate a clear direction that the primary productive capacity of land should be protected, for example:

*Limit the scale and range of activities that can be established in rural areas to those that require a rural location, and discourage, as far as practicable, activities which do not rely on the productive capacity of the land of the Rural 3 Zone. [Wairau Plain - Policy 12.2.2.1.3]*

*Maintenance or enhancement of the life supporting capacity of the soils and the retention of primary production options for rural land. [General Rural - Objective 12.4.2.1]*

*To adequately provide within the rural zones for a range of persons wishing to live in the rural areas without placing undue demands on existing facilities in the rural areas and without inhibiting or diminishing the life supporting capacity of the soil or the primary productive capacity of the land. [Residential activity in the rural environment - Objective 12.5.2.1]*

Under an objective of protecting rural amenity values for the Wairau Plain [Objective 12.2.2.2] the following two policies are also significant:

*Ensure that the patterns of small-scale rural subdivision and related residential development are not located where:*

- *Rural amenity values of openness will be adversely affected; or*
- *The potential for conflict between residential and neighbouring rural activities will be created, or where they already exist, be exacerbated. [Policy 12.2.2.2.7]*

*To enable rural activities which might generate adverse effects such as noise or smell, to operate in rural areas in accordance with accepted practices, without being significantly compromised by other activities demanding higher levels of amenity. [Policy 12.2.2.2.8]*

The explanation for these policies describes how a wide range of activities occur in rural areas, including viticulture, traditional livestock farming and the farming of supplementary crops, as well as more intensive pastoral and horticultural enterprises. Low density residential development has now also spread throughout rural areas. The explanation goes on to say:

*People have differing expectations about what are acceptable amenity levels in the rural environment. Amenity means how noise levels, odour strength, air quality and visual appearance relate to the overall nature of the rural environment. The inherent nature of land based productive activities, means that intermittently high noise levels will be produced when agricultural machinery is being used, stock is being moved or held, or crop protection mechanisms are activated. These activities may also result in increased odour levels and reduced air quality.*

*Therefore, current amenity levels in the rural areas of Marlborough are characterised by fluctuations in amenity because of both routine and seasonal land based primary production management practices. These fluctuations should be accepted as anticipated components of rural amenity values, particularly by those choosing to live in rural areas. This does not mean that the duty under Section 17 of the RMA to avoid, remedy or mitigate the adverse effects of activities is removed.*

*The policies seek generally to enable established rural land uses and associated management practices to continue to operate sustainably in rural areas, so long as the effects from these uses do not constitute a general nuisance or health risk. The Plan sets out the expected amenity levels for rural areas to protect human health and safety. This should ensure that the potential for reverse sensitivity conflicts between the expectations of rural residents and those undertaking rural land uses are avoided, as far as possible.*

A policy with the same wording as 12.2.2.2.8 above and the same explanation as quoted, also forms part of the policy framework for the balance of rural land in general including the lower Awatere Valley.

There is clear recognition within the overall policy framework that there are effects from rural activities that people moving into rural areas may not have anticipated. This may result in noise or smells or other effects that are considered to be a part of rural activities. This includes effects from rural activities that may not be considered to be as 'traditional' as farming.

### Provisions of the Marlborough Sounds Resource Management Plan

The Marlborough Sounds Plan is the same as the Wairau/Awatere Plan in that there is no specific permitted activity rule for frost fans. The permitted activity standards for noise include specific provision for noise from frost fans as follows:

36.1.3.4        *Noise*

...

36.1.3.4.2      *Exception*

*Except where expressly provide elsewhere noise shall be measured in accordance with the provisions of NZS 6801:1991 Measurement of Sound, and assessed on accordance with NZS 6802:1991 Assessment of Environmental Sound.*

*Notwithstanding the conditions in Rule 36.1.3.4, above, the following exemptions to that rule shall apply.*



...

#### 36.1.3.4.2.3 Wind Machines for Frost Control

Any wind machine used for frost control shall be so constructed and operated that any noise emission measured at a distance of 300 metres shall not exceed 60 dBA L10 provided that:

- a) The operation of the wind machine shall be restricted to periods during which the local air temperature does not exceed 2 degrees Celcius;
- b) No wind machine shall be sited within 100 metres of any dwelling not on the same property;
- c) The speed of the wind machine must be governed such that the top speed of the rotor does not exceed the speed of sound; and
- d) The wind machine be located no closer than 500 metres to an Urban Residential Zone.

The rural environments policy framework is to be found in Chapter 11. The overall framework is much simpler in the Marlborough Sounds Plan than it is for the Wairau/Awatere Plan. There is only one objective and this states:

*Sustainable management of rural resources and integrated resource use to protect the character and amenity of rural areas and avoid, remedy or mitigate adverse effects of activities. [Objective 11.3.1]*

There is not the same emphasis on the productive capacity of the Marlborough Sounds Plan area however, the policies that support this objective do seek to protect rural amenity and avoid conflicts arising between those carrying out rural activities and non rural uses. A specific policy is also aimed at avoiding, remedying, and mitigating the effects of unreasonable noise in rural environments.

There is very little in the way of applicable policy in the Noise chapter of the Marlborough Sounds Plan (Chapter 22). Two very general policies state:

*Avoid, remedy and mitigate community disturbance, disruption or interference by noise within coastal, rural, and urban areas. [Policy 22.3.1.1]*

*Accommodate inherently noisy activities and processes which are ancillary to normal activities within industrial, port and rural areas. [Policy 22.3.1.3]*

## Summary of resource management plan provisions

Both resource management plans for Marlborough have provisions for frost fans (referred to as 'wind machines for frost protection'). The rules enable frost fans to be erected and used as a permitted activity as part of farming operations. There are standards that have to be met but it has been difficult to determine whether these are able to be met before a fan is erected.

In the absence of any frost fans in the Marlborough Sounds Plan area, the focus has been on examining in more detail the provisions of the Wairau/Awatere Plan. However, both resource management plans have provisions for frost fans that are somewhat dated.

The policy framework in the Wairau/Awatere Plan does give significant recognition to protecting the productive capacity of rural areas. The policies also seek to ensure that rural activities which might generate noise or smell effects, to operate in rural areas in accordance with accepted practices, without being significantly compromised by other activities demanding higher levels of amenity.

## PART C: SECTION 32 EVALUATION

The Section 32 process must be transparent and well documented, with all assumptions and decisions justified. This helps to ensure that:

- Good environmental outcomes are achieved.
- Plan provisions are targeted at achieving the purpose of the RMA by the most appropriate methods.
- Councillors (as decision makers) have sound policy analysis on which to base their decisions about resource management issues.
- A sound basis is provided for reassessing whether the chosen provisions are necessary and appropriate once they are in use and the environmental outcomes become apparent.

Section 32(4) of the Act states that this evaluation must take into account:

- (a) the benefits and costs of policies, rules or other methods; and*
- (b) the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules or other methods.*

### Evaluation of options

The Council considered four options for addressing the issue:

- Option 1: Do nothing and rely on current rules and industry codes of practice.
- Option 2: Do nothing and wait until the results of the forensic monitoring are completed prior to making a decision about whether changes ought to be made to the resource management plans.
- Option 3: Undertake a full review of the policy and rule framework for rural activities insofar as these activities affect rural amenity, particularly focussing on noise effects.
- Option 4: Amend the status of frost fans from permitted to controlled including a limited review of the existing permitted activity standards.

Each of the first three options is described below along with an assessment of the costs and benefits undertaken and why the Council has decided not to pursue these options. The option the Council believes is the most effective or efficient in terms of achieving the objectives of the resource management plans of the RMA is then described in more detail and assessed against the requirements of section 32 of the RMA.

<p><b>Option 1:</b></p> <p><b>Do nothing and rely on current rules and industry codes of practice</b></p>	<p>Option 1 is to retain the current rules as described in Part B of this report. Although not previously discussed in any detail, New Zealand Winegrowers developed a 'Wind Machine Code of Practice' for its members in 2008. This Code is only a voluntary code, the intent of which is to provide guidance on the safe operation of wind machines. The code suggests that machines should only be used when climatic conditions necessitate their use, in accordance with local council rules and in a way that minimises risk and disturbance to others.</p> <p>The main benefits of doing nothing are:</p> <ul style="list-style-type: none"> <li>• No changes to the resource management plans are required and therefore no costs associated with the formal processes of the</li> </ul>
---	--

	<p>Resource Management Act 1991 are incurred.</p> <ul style="list-style-type: none"> <li>• Growers retain certainty that they can continue to erect and use frost fans, so long as the permitted activity standards are met.</li> <li>• No costs are involved for growers in having to obtain resource consent to erect and use frost fans.</li> </ul> <p>The costs associated with this option are:</p> <ul style="list-style-type: none"> <li>• Residents will not have any confidence as to whether standards are being met and consequently there will be ongoing debate as to whether frost fans are complying with the existing conditions for permitted activities.</li> <li>• There is potential for conflicts between residential activities in the rural environment and primary production activities using frost fans to increase.</li> <li>• The Council is likely to continue to receive complaints about the operation of frost fans.</li> <li>• Ongoing costs will be incurred in investigating whether growers are complying with the permitted activity standards.</li> <li>• The existing rules are outdated and are difficult to enforce and therefore in RMA terms cannot be considered to be effective or efficient.</li> </ul> <p>The Council has decided not to pursue this option because the costs of doing nothing in light of the difficulties the Council has had in administering the existing rules significantly outweigh any benefits of retaining them.</p>
<p><b>Option 2:</b></p> <p><b>Do nothing and wait until the results of the forensic monitoring are completed prior to making a decision about whether changes ought to be made to the resource management plans</b></p>	<p>Similar to Option 1, Option 2 requires no change to the resource management plans at this point. This Option is based on deferring any decision to change the resource management plans until such time as the forensic monitoring is completed and the results assessed.</p> <p>The benefits and costs are effectively the same as for Option 1 in terms of the current rules being applied, although there could be some uncertainty experienced for a period of time for both residents and growers as to what the outcome of the forensic monitoring might be.</p> <p>While work on the forensic monitoring is underway, the reason the Council has decided not to pursue Option 2 is that the costs of doing nothing and waiting outweigh the benefits of such an approach. The rules for frost fans in the resource management plans, notably the Wairau/Awatere Resource Management Plan, have not proven to be effective or efficient in current form.</p>

<p><b>Option 3:</b></p> <p><b>Undertake a full review of the policy and rule framework for rural activities insofar as these activities affect rural amenity, particularly focussing on noise effects</b></p>	<p>The policy framework in the Wairau/Awatere Resource Management Plan particularly, gives significant recognition to protecting the productive capacity of rural areas. The policies seek to ensure that rural activities, which might generate noise or smell effects, can operate in rural areas in accordance with accepted practices and without being significantly compromised by other activities demanding higher levels of amenity.</p> <p>What has happened however is that residential activity has also been allowed to develop in rural areas creating reverse sensitivity issues such as those being experienced with the use of frost fans. In addition when the rules were first prepared for the plans to allow the erection and use of frost fans as a permitted activity, the amount of land planted in grapes was considerably less compared to what exists today. There wouldn't have been the expectation that viticulture would have become so widespread nor that frost fans would become such a part of day to day viticultural activity.</p> <p>Undertaking a full review of the existing framework would enable a more up-to-date consideration to take place of whether the productive capacity of rural land should still have the same levels of protection. A review of managing residential development and amenity values in rural areas would highlight any different trends that would suggest a different approach is warranted.</p> <p>However, the reason the Council has decided not to pursue this option is that although it would be effective in the longer term, it would not address the existing and very current issues facing the community about the use of frost fans. Additionally, the Council is in the process of undertaking its 10 year review of the Marlborough Regional Policy Statement so the issues regarding rural environments are currently being canvassed through that process.</p>
<p><b>Option 4:</b></p> <p><b>Amend the status of frost fans from permitted to controlled</b></p>	<p>In a general sense the benefits of changing the status of frost fans from permitted to controlled are considered to be:</p> <ul style="list-style-type: none"> <li>• A determination about a frost fan meeting the controlled activity standards will be required before a frost fan is able to be erected.</li> <li>• With a controlled activity status, growers will receive a resource consent provided the standards for the controlled activity are met.</li> <li>• Conditions can be imposed requiring monitoring of resource consents.</li> <li>• Where a frost fan cannot meet the standards then a case by case assessment will occur as a discretionary activity.</li> </ul> <p>The costs of changing the status from permitted to controlled are considered to be:</p> <ul style="list-style-type: none"> <li>• Costs of preparing and processing changes to the resource management plans.</li> <li>• Costs to individual growers in having to obtain resource consent.</li> <li>• Existing frost fans that comply with the current rules are not subject to the requirement for resource consent as the provisions of the</li> </ul>

	<p>RMA provide for existing use rights.</p> <ul style="list-style-type: none"> <li>• There may be a cost to people building new dwellings (or other habitable buildings) in having to comply with standards about noise insulation.</li> <li>• This option doesn't address all the issues of rural amenity and effects on people living in rural areas.</li> </ul>
--	--

The Council has opted to pursue Option 4 as it is considered this will more effectively and efficiently deal with some immediate issues. The main changes to the resource management plans that arise from this plan changes, aside from the change in status from permitted to controlled, are as follows:

- A lowering in decibel level from 60 to 55.
- Including a new requirement that the noise standard has to be met at not only at a distance of 300 metres from the device but at the notional boundary of any existing dwelling, visitor accommodation or other habitable building (other than on the property on which the frost fan is situated), whichever is the least distance.
- The use of an updated New Zealand Standard for the measurement and assessment of noise.
- Removing the part of the rule that states “*or within 100 metres of a dwelling house not located on the property*”.
- A list of matters that the Council may impose conditions about.
- A new rule for Rural and Rural Residential Zones that requires any new dwellings, visitor accommodation or other habitable buildings to be designed and constructed to ensure the noise level inside any bedroom of the dwelling does not exceed 30 dB LAeq with the closest frost fan operating when the doors and windows are closed.

The following assessment considers the individual parts of the main changes proposed.

<b>Change in name of wind machine for frost protection to ‘frost fan’ and inclusion of a definition for this.</b>	<p>Although no specific issues have arisen with the use of the existing term ‘wind machines for frost protection’, these devices are more frequently referred to as frost fans. There are no significant costs or benefits in this change but a shorter name to refer to in the resource management plans is somewhat more efficient.</p>
<b>The use of an updated New Zealand Standard for the measurement and assessment of noise.</b>	<p>Currently the resource management plans state that unless expressly provided elsewhere in the plans that sound levels shall be measured in accordance with the provisions of NZS6801:1991 and assessed in accordance with the provisions of NZS6802:1991. These standards set out procedures for the assessment of noise, for compliance with noise limits and provide guidance for the setting of noise limits for consent conditions, rules or national environmental standards.</p> <p>The reason for the reference to 1991 standards is due to the timing when the plans went through the notification and submission process.</p> <p>A more up-to-date standard was published in 2008, however the RMA does not simply allow the incorporation of new standards into resource management plans without going through the formal change processes of the First Schedule of the RMA. This proposed plan change allows the opportunity to update the standard as it is applicable to frost fans.</p>

	<p>A difference between the 1991 standard and the 2008 standard is that there has been a change in the way noise is measured. The Council considers that it is appropriate to move to the new method which uses an LAeq measurement rather than the L10 measurement. While there may be a case to argue as to why an L10 measurement of the noise from a frost fan is more appropriate when considering the effect of the noise on Marlborough residents (i.e. it is a parameter that in general correlates well with community response) there has been an international move to LAeq which is now widely adopted. This has been reflected in the latest revisions of NZS6801 and 02. The reasons for this include: (1) a statistical measure such as L10 requires rather more specialist instrumentation than is widely used and (2) it is more appropriate to use an LAeq measurement in noise modeling work than the assumptions that are required when working with an L10 measurement.</p> <p>For these reasons the Council considers use of the new standard for measuring and assessing noise from frost fans will be more effective and efficient in achieving the resource management plans objectives and policies for noise.</p>
<p><b>A lowering in decibel level from 60 to 55</b></p>	<p>The existing decibel level in the Wairau/Awatere Resource Management Plan for frost fans is set at 60 dBA L10. Mr Maassen's report recommended as part of changing the rules that the standards be amended to reduce the level of noise emission from 60 dBA L10 to 55 dBA L10 (measured in accordance with the 1991 standard). He further recommended that in lowering the level that no further penalty should be applied for frost fans with special audible characteristics.</p> <p>(Special audible characteristics as defined in NZ6802:2008 are those noises that may be tonal such as a hum or a whine, impulsive such as bangs or thumps or other forms including but not limited to, high speed cutting or grinding.)</p> <p>The general noise interpretation provisions of the Wairau/Awatere Resource Management Plan state adjustments for special audible characteristics, if present shall apply and will have the effect of imposing a numerical noise limit 5 dB more stringent than those L10 numerical limits stated in the Plan.</p> <p>This means that if frost fans do exhibit characteristics such as those described above, then effectively a limit of 55 dBA has to be met. However, there is some debate as to whether these general noise interpretation provisions can be applied to the existing and specific frost fan rules.</p> <p>There is also some debate as to whether or not all types of frost fans exhibit special audible characteristics. However, the introduction of the new standards in 2008 for measuring and assessing noise means there is a more up-to-date process for assessing sources of noise with special audible characteristics.</p> <p>New Zealand Winegrowers sought retention of the 60 dBA level based on acoustic advice. It considers that given the climatic conditions of when frost fans are likely to operate, windows and doors of a habitable building are expected to be closed. This means that inside noise levels of 30 dB LAeq are able to be achieved with noise attenuation occurring through the façade of a building, which is then likely to be met with a noise level of 60 LAeq outside the building. (The 30 dB LAeq is a World</p>

	<p>Health Organisation recommendation for continuous indoor noise level for the avoidance of sleep disturbance.)</p> <p>Landowners commenting on the draft rules considered that even at 55 dB LAeq measured at the notional boundary, it may be impossible to achieve an indoor sound level of 30 dB LAeq as older houses may not attenuate sound.</p> <p>However, a supplier of frost fans in commenting on the draft rules indicated that its four bladed frost fans could meet the 55 dB LAeq requirement at 300 metres.</p> <p>Given this the Council considers lowering the decibel is effective and efficient in achieving the resource management plans objectives and policies for noise.</p>
<p><b>Where noise is to be measured from</b></p>	<p>The existing rule requires the noise level of 60 dBA L10 to be met when measured at a distance of 300 metres. What has been proposed through this plan change is that this rule is further clarified requiring the new level of 55 dB LAeq to be met at:</p> <ul style="list-style-type: none"> <li><i>(i) at a distance of 300 metres from the frost fan; or</i></li> <li><i>(ii) at the notional boundary of any existing dwelling, visitor accommodation or other habitable building (other than on the property on which the frost fan is situated);</i></li> </ul> <p><i>whichever is the least distance.</i></p> <p>The 300 metre distance is currently what is in both resource management plans. There is no change proposed to this. It is only the addition of the measuring at the notional boundary of an existing dwelling (or other habitable building) that is different.</p> <p>The reason for the introduction of the second part of this rule is so that where there is an existing dwelling, a grower wanting to install a frost fan would have to demonstrate that noise emissions can comply at the notional boundary of the dwelling if the fan is to be sited closer than the 300 metres. This rule allows for a situation where technological advances in the design of frost fans means the noise limits prescribed in the resource management plans could be met closer than 300 metres.</p> <p>These setback provisions were supported by New Zealand Winegrowers in commenting on the draft rules (albeit seeking a 60 dB LAeq noise level). A frost fan supplier was concerned that if a landowner has built close to a boundary then this could effectively leave an area vulnerable to frost if a machine has to be setback 250 metres. It was their view that a setback rule of 100 metres from a property boundary was sufficient and that growers should be allowed to farm their land productively.</p> <p>The Council considers that the introduction of this rule will assist in encouraging the use of quieter machines, especially where growers want to site fans closer than the 300 metres. Such an approach is effective in helping to achieve the objectives and policies of the resource management plans regarding noise.</p>

<p><b>Clarification about separation distances</b></p>	<p>Currently the resource management plans restrict frost fans from within 100 metres of a dwelling house not located on the same property as the frost fan. The draft plan change proposed the removal of this rule and its replacement requiring a 100 metre setback from any boundary of a separate lot in different ownership.</p> <p>In considering comments made about these rules, the Council believes that neither rule effectively deals with noise issues. It may address to some extent other issues such as safety in terms of the proximity of fans to dwellings but this is not the focus of this plan change.</p> <p>The separation distances between dwellings and frost fans will effectively be determined by the point at which the noise level of 55 dB LAeq is achieved.</p> <p>The one exception to this is that in the case of residential zones (those being Urban Residential, Township Residential, Rural Residential Zone or the Marlborough Ridge Zone) the Council believes that a defined setback is appropriate. The interface between different zones in resource management plans can be a problem where the effects from an activity can create reverse sensitivity effects where they may not be experienced within the zone itself.</p> <p>For these interface areas in terms of residential zones, the Council believes that the setback is an effective and efficient method to deal with potential noise issues.</p>
<p><b>A list of matters that the Council may impose conditions on</b></p>	<p>The RMA requires that when defining an activity as a controlled activity in a plan, that the plan must specify in the plan the matters over which it has reserved control and the power to impose conditions on the resource consent is restricted to the matters that it has reserved control over. This is in addition to also having to meet any standards imposed [section 77B(2) of the RMA].</p> <p>The draft rules proposed by the Council include matters such as measurement of air temperature, operational requirements of frost fans, speed of frost fan, operation of frost fans for maintenance purposes, hours of operation, recording information about the use of frost fans and monitoring requirements.</p> <p>A range of comments were received about whether all of these matters were necessary or not and as a consequence several have been removed. (New Zealand Winegrowers sought the removal of most of the matters listed because of other amendments sought to the draft rules.) For the most part however, at this stage the Council prefers the listed matters to be included the resource management plans at this stage. The reason for the Council changing the status of the rule is to enable it to gather information about how frost fans are used. To do this requires the types of information that are listed. There will be some cost to growers in having to provide some of the information but the Council has been advised by New Zealand Winegrowers that most frost fan operators already keep records of their operations and therefore it is considered that the costs are not that significant. It is further considered that with technological advances in information recording that any measurements required may actually be able to be recorded automatically.</p> <p>Monitoring is a part of many resource consent processes and it is appropriate that the costs of this should lie with the grower rather than</p>



	<p>ratepayers.</p> <p>It may be once the rules have been in place for a period of time and with experience in administering them that some of the matters over which control has been reserved may not be necessary. However, until such time as this does occur, the Council considers the matters listed are necessary.</p>
<p><b>New rule for noise sensitive activities</b></p>	<p>A new rule is proposed for Rural and Rural Residential Zones that requires any new dwellings, visitor accommodation or other habitable buildings to be designed and constructed to ensure the noise level inside any bedroom of the dwelling does not exceed 30 dB LAeq with the closest frost fan operating when the doors and windows are closed.</p> <p>Compliance with this standard has to be supported by a design certificate from an appropriately qualified and experienced acoustic engineer.</p> <p>The costs for this lie with the landowner erecting a new dwelling (or other habitable building). In coming into rural areas, new rural residents need to take responsibility to ensure that if they are building within 300 metres of an existing frost fan that they are appropriately protecting themselves from the noise generated by fans. This approach is an effective and efficient of achieving the objectives and policies, particularly in the Wairau/Awatere Resource Management Plan, about protecting the productive capacity of rural areas.</p> <p>In response to a query raised by a landowner about where existing dwellings may have an additional bedroom added, it is intended that the rule would also apply to any new bedroom that may be added to an existing dwelling, visitor accommodation or other habitable building.</p> <p>This provision was supported by New Zealand Winegrowers as helping to reduce reverse sensitivity issues in rural areas. This approach was consistent with how other councils around New Zealand are addressing related noise issues. New Zealand Winegrowers considered it appropriate for people wishing to build new dwellings or other habitable building in rural zones to take steps to ensure that existing primary production activities do not affect their health and amenity.</p>

## Risk of acting or not acting

Under section 32, the RMA requires the Council to evaluate the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules or other methods. In this case, if the Council does not act to change the permitted activity status to controlled in the resource management plans, the existing situation of not being able to determine whether frost fans are complying with the existing rules will continue. This process, as already explained, is a two stage process that will enable the gathering of information to make a determination as to whether further plan changes are necessary about how our activities in Marlborough's rural environments should be provided for.

## CONCLUSION

Based on the assessment above, the overall conclusion is that the proposed changes better achieve the objectives and policies of the Wairau/Awatere and Marlborough Sounds Resource Management Plans than do the existing frost fan provisions of the Plans. It is also concluded that the benefits of the proposed changes outweigh the costs.

The Council considers that this step in conjunction with a forensic monitoring approach to determining noise produced from frost fans will assist in reaching a decision as to whether further and perhaps more substantial changes might be needed to the resource management plans at a later time.

## APPENDIX 1: SCHEDULE OF PROPOSED CHANGES

---

### Wairau/Awatere Resource Management Plan

#### Volume Two

#### Definitions

1. **Add** a new definition as follows:

Frost fan means a land based device, designed or adapted to control frost by fanning warmer air over potentially frost-affected surfaces, and includes the support structure.

#### Rural 3 and 4 Zones

2. **Delete** Rural 3 and 4 Zones Rule 30.1.4.2.3 as follows. (Consequential renumbering for existing Rule 30.1.4.2.4 Temporary Military training Activities to 30.1.4.2.3)

#### ~~30.1.4.2.3 Wind machines for Frost Control~~

~~Any wind machine used for frost control shall be so constructed and operated that any noise emission measured at a distance of 300 metres shall not exceed 60 dBA L10 provided that:~~

- ~~a) The wind machine will be allowed to operate during the frost danger period until the leaves of the plant are dry and the air temperature has reached 2°C;~~
- ~~b) The speed of the wind machine must be governed such that the top speed of the rotor does not exceed the speed of sound; and~~
- ~~c) The wind machine be located no closer than 500 metres to any residential zone, or within 100 metres of a dwelling house not located on the property.~~

3. **Add** a new rule 30.1.4.2.4 as follows:

#### 30.1.4.2.4 Noise Sensitive Activities

- (a) Any new dwellinghouse, visitor accommodation or other habitable building located within 300 metres of any frost fan shall be designed and constructed to ensure that the noise level inside any bedroom of the dwelling shall not exceed 30 dB LAeq with the closest frost fan operating when the doors and windows are closed. Compliance with this standard shall be demonstrated by the production of a design certificate from an appropriately qualified and experienced acoustic engineer.
- (b) This rule shall also apply to any alteration of an existing dwellinghouse, visitor accommodation or other habitable building located within 300 metres of any frost fan, where a new bedroom forms part of the alteration. Only the new bedroom has to be treated in accordance with part (a) of this rule.
- (c) For the purpose of this rule, "frost fan" includes a proposed frost fan for which an approved building consent and/or resource consent has been granted.

4. **Add** a new bullet point to the list of bullet points in Rural 3 and 4 Zones Rule 30.2.1 as follows:

- Erection and use of frost fans

**5. Add** a new Rule 30.2.9 as follows:

30.2.9       Erection and use of frost fans

The construction and use of a frost fan is a Controlled Activity provided that the activity conforms to the following standards and terms:

30.2.9.1       Standards and Terms

30.2.9.1.1    Noise from a frost fan shall not exceed 55 dB LAeq when measured:

- i)       at a distance of 300 metres from the device; or
- ii)      at the notional boundary of any existing dwelling, visitor accommodation or other habitable building (other than on the property on which the frost fan is situated);

whichever is the least distance.

30.2.9.1.2    Sound levels shall be measured in accordance with the provisions of NZS 6801: 2008 Acoustics – Measurement of Sound and assessed in accordance with the provisions of NZS 6802: 2008 Acoustics – Environmental Noise.

30.2.9.1.3    The frost fan shall only be operated for frost protection and when the air temperature on the vineyard drops to 2°C.

30.2.9.1.4    The frost fan shall not be located within 500 metres of an Urban Residential, Township Residential, Rural Residential Zone or the Marlborough Ridge Zone.

30.2.9.2       Matters Over Which the Council Will Exercise Control

The Council reserves control over and may impose conditions with respect to:

- (a)   Operational requirements of frost fans.
- (b)   Speed of frost fan.
- (c)   Operation of frost fans for maintenance purposes.
- (d)   Recording information about the use of frost fans.
- (e)   Monitoring requirements.

***Rural Residential Zone***

**6. Add** a new rule 31.1.5.1 as follows:

31.1.5.1       Noise Sensitive Activities

- (a)   Any new dwellinghouse, visitor accommodation or other habitable building located within 300 metres of any frost fan shall be designed and constructed to ensure that the noise level inside any bedroom of the dwelling shall not exceed 30 dB LAeq with the closest frost fan operating when the doors and windows are closed. Compliance with this standard shall be demonstrated by the production of a design certificate from an appropriately qualified and experienced acoustic engineer.
- (b)   This rule shall also apply to any alteration of an existing dwellinghouse, visitor accommodation or other habitable building located within 300 metres of any frost fan,

where a new bedroom forms part of the alteration. Only the new bedroom has to be treated in accordance with part (a) of this rule.

- (c) For the purpose of this rule, “frost fan” includes a proposed frost fan for which an approved building consent and/or resource consent has been granted.

### **Appendix K Marlborough Ridge Zone**

7. **Add** a new rule 2.2.11.1 (to be located immediately before the ‘Bird Scaring Device’ rule) as follows:

#### 2.2.11.1 Noise Sensitive Activities

- (a) Any new dwellinghouse, visitor accommodation or other habitable building located within 300 metres of any frost fan shall be designed and constructed to ensure that the noise level inside any bedroom of the dwelling shall not exceed 30 dB LAeq with the closest frost fan operating when the doors and windows are closed. Compliance with this standard shall be demonstrated by the production of a design certificate from an appropriately qualified and experienced acoustic engineer.
- (b) This rule shall also apply to any alteration of an existing dwellinghouse, visitor accommodation or other habitable building located within 300 metres of any frost fan, where a new bedroom forms part of the alteration. Only the new bedroom has to be treated in accordance with part (a) of this rule.
- (c) For the purpose of this rule, “frost fan” includes a proposed frost fan for which an approved building consent and/or resource consent has been granted.

8. **Number** the ‘Bird Scaring Device’ rule as 2.2.11.2.

9. **Delete** the ‘Wind Machines for Frost Control’ under 2.2.11 as follows:

#### ~~Wind Machines for Frost Control~~

- ~~• Noise levels measured at 200 metres from the wind machine shall not exceed 60 dBA provided that:~~
- ~~• That the start-up air temperature for the machine should be no higher than 2°C.~~
- ~~• That the wind machine be allowed to operate during the frost danger period until the leaves of the plant are dry and the air temperature has reached 1°C.~~
- ~~• That the speed of the wind machine must be governed such that the top speed of the rotor does not exceed the speed of sound.~~
- ~~• That the wind machine be located no closer than 500 metres to a residential zone.~~

10. **Add** a new rule 2.3.3 as follows:

#### 2.3.3 Erection and use of frost fans

The construction and use of a frost fan is a Controlled Activity provided that the activity conforms to the following standards and terms:

2.3.3.1 Standards and Terms

2.3.3.2 Noise from a frost fan shall not exceed 55 dB LAeq when measured:

- i) At a distance of 300 metres from the device; or
- ii) At the notional boundary of any existing dwelling, visitor accommodation or other habitable building (other than on the property on which the frost fan is situated);

whichever is the least distance.

2.3.3.3 Sound levels shall be measured in accordance with the provisions of NZS 6801: 2008 Acoustics – Measurement of Sound and assessed in accordance with the provisions of NZS 6802: 2008 Acoustics – Environmental Noise.

2.3.3.4 The frost fan shall only be operated for frost protection and when the air temperature on the vineyard drops to 2°C.

2.3.3.5 Matters Over Which the Council Will Exercise Control

The Council reserves control over and may impose conditions with respect to:

- (a) Operational requirements of frost fans.
- (b) Speed of frost fan.
- (c) Operation of frost fans for maintenance purposes.
- (d) Recording information about the use of frost fans.
- (e) Monitoring requirements.

# Marlborough Sounds Resource Management Plan

## Volume Two

### Definitions

1. **Add** a new definition as follows:

Frost fan means a land based device, designed or adapted to control frost by fanning warmer air over potentially frost-affected surfaces, and includes the support structure.

### Rural 1 and 2 Zones

2. **Delete** Rural 1 and 2 Zones Rule 36.1.3.4.2.3 as follows: (Consequential renumbering for Rules 36.1.3.4.2.4 to 36.1.3.4.2.6)

#### ~~36.1.3.4.2.3 Wind Machines for Frost Control~~

~~Any wind machine used for frost control shall be so constructed and operated that any noise emission measured at a distance of 300 metres shall not exceed 60 dBA L10 provided that:~~

- ~~a) The operation of the wind machine shall be restricted to periods during which the local air temperature does not exceed 2 degrees Celcius;~~
- ~~b) No wind machine shall be sited within 100 metres of any dwelling not on the same property;~~
- ~~e) The speed of the wind machine must be governed such that the top speed of the rotor does not exceed the speed of sound; and~~
- ~~d) The wind machine be located no closer than 500 metres to an Urban Residential Zone.~~

3. **Add** a new Rule 36.1.3.4.2.6 as follows:

#### 36.1.3.4.2.6 Noise Sensitive Activities

- (a) Any new dwellinghouse, visitor accommodation or other habitable building located within 300 metres of any frost fan shall be designed and constructed to ensure that the noise level inside any bedroom of the dwelling shall not exceed 30 dB LAeq with the closest frost fan operating when the doors and windows are closed. Compliance with this standard shall be demonstrated by the production of a design certificate from an appropriately qualified and experienced acoustic engineer.
- (b) This rule shall also apply to any alteration of an existing dwellinghouse, visitor accommodation or other habitable building located within 300 metres of any frost fan, where a new bedroom forms part of the alteration. Only the new bedroom has to be treated in accordance with part (a) of this rule.
- (c) For the purpose of this rule, "frost fan" includes a proposed frost fan for which an approved building consent and/or resource consent has been granted.

4. **Add** a new bullet point to the list of bullet points in Rural 1 and 2 Zones Rule 36.2 as follows:

- Erection and use of frost fans

**5. Add** a new Rule 36.2.7 as follows:

30.2.7       Erection and use of frost fans

The construction and use of a frost fan is a Controlled Activity provided that the activity conforms to the following standards and terms:

30.2.7.1       Standards and Terms

30.2.7.1.1    Noise from a frost fan shall not exceed 55 dB LAeq when measured:

- i)       at a distance of 300 metres from the device; or
- ii)      at the notional boundary of any existing dwelling, visitor accommodation or other habitable building (other than on the property on which the frost fan is situated);

whichever is the least distance.

30.2.7.1.2    Sound levels shall be measured in accordance with the provisions of NZS 6801: 2008 Acoustics – Measurement of Sound and assessed in accordance with the provisions of NZS 6802: 2008 Acoustics – Environmental Noise.

30.2.7.1.3    The frost fan shall only be operated for frost protection and when the air temperature on the vineyard drops to 2°C.

30.2.7.1.4    The frost fan shall not be located within 500 metres of an Urban Residential Zone.

30.2.7.2       Matters Over Which the Council Will Exercise Control

The Council reserves control over and may impose conditions with respect to:

- (a)   Operational requirements of frost fans.
- (b)   Speed of frost fan.
- (c)   Operation of frost fans for maintenance purposes.
- (d)   Recording information about the use of frost fans.
- (e)   Monitoring requirements.