

File: RM960447
H & B2913100900
Enforcement Officer
Ops and Services
Rates
PF 18

7 February 1997

Parachute Adventures Queenstown Ltd
C/- Macalister Todd Phillips
P O Box 653
QUEENSTOWN

Dear Sir/Madam

DECISION OF THE QUEENSTOWN-LAKES DISTRICT COUNCIL

RESOURCE MANAGEMENT ACT 1991

PARACHUTE ADVENTURES QUEENSTOWN LTD - RM960447

Introduction

Your application for a discretionary activity land use consent under Section 88 of the Resource Management Act 1991 to operate a commercial parachute and associated transport operation from an existing airstrip at Remarkables Station was considered by the Wakatipu Resource Consents Hearings Panel on 22 January 1997.

The airstrip is located approximately 10 kilometres from the Queenstown Airport along State Highway 6. It is sited approximately mid-point between Jacks Point and State Highway 6 on Remarkables Station (owned by D and J Jardine).

Mr L Williams (Applicant) was present at the hearing.

The application was considered on a non-notified basis in terms of Section 94 of the Act because the written approval of all those persons who may be adversely affected by the granting of the resource consent was obtained, and because the adverse effect on the environment of the activity for which consent is sought was considered to be minor.

Considerations

Transitional District Plan

The site is zoned Rural B in the Transitional District Plan. Pursuant to Rule 7.02, which refers to the activities listed in Rule 6.02 for the Rural A zone, lists "*camping grounds, halls and generally buildings and land for or connected with indoor or outdoor recreation*", as a discretionary activity.

Proposed District Plan

On 10 October 1995 the Proposed District Plan was publicly notified. Therefore, the application was assessed in terms of both plans. The subject site is zoned Rural Downlands in the Proposed District Plan.

By definition the proposed activity is a recreational activity. Rule 5.5.3.3.(iv) provides that recreational activities (other than on the surface of water bodies) are discretionary activities. Rule 5.5.3.3.(v) provides for the take-off or landing of any motorised aircraft as a discretionary activity.

Resource Management Act 1991

As the proposed activity is discretionary it was assessed in terms of Sections 104 and 105(1)(b) of the Resource Management Act 1991.

Under Section 105(1)(b) of the Resource Management Act 1991, the Council may grant or refuse consent and if consent is granted may impose conditions under Section 108.

Appearances

Mr Williams did not have any additional information to present at the hearing and agreed with all the conditions recommended in the Planner's report. Mr Williams questioned the need for the vehicle entrance to be up graded considering the likely vehicle movements per day, but accepted Diagram 2 being the minimum standard required by Transit New Zealand.

Mr Williams confirmed that the planes usually fly at 1000 feet but was prepared to comply with Condition 3 as proposed in the Planner's report which restricts flying to over 2000 feet above the Carlin property as shown in Figure 1 attached.

Mr Williams confirmed that they had been operating for 6 years and did not envisage any problem with the number of flights being restricted to 35 per day.

The concerns of Mr S Brough, Remarkables Lodge, which were communicated prior to the hearing with regard to noise were discussed. Mr Williams confirmed that he and Mr Brough were prepared to come to an agreement between themselves to mitigate the effects of noise on Mr Brough's property.

Decision

Consent is granted pursuant to Sections 104 and 105 of the Act, subject to the following conditions imposed pursuant to Section 108 of the Act:

1. That the activity take place in accordance with the plans and documentation submitted with the application with the exception of the amendments required by the following conditions of consent.
2. The operation shall be limited to the use of two aircraft at any one time.
3. No aircraft, that are in any way used by or associated with Parachute Adventures Limited (or any subsequent holder of any resource consent granted to Parachute Adventures Limited) shall fly over that area identified on the attached plan (see figure 1) at an altitude of less than 2000 feet above ground level - provided that this restriction shall not apply in any situation required by the Civil Aviation Authority, or in any emergency procedure.
4. The maximum flights per day shall not exceed 35 flights, a flight being defined as a landing and takeoff.
5. Prior to the commencement of the activity the applicant shall upgrade the existing access point onto the State Highway to the following standard to meet the requirements of Transit New Zealand:
 - (a) A formed metal entrance shall be provided from the carriageway of the State Highway to a minimum of 6 metres from the edge of the existing seal.
 - (b) Width of the accessway to be not less than 3.5 metres or greater than 6.0 metres wide, plus flares where it meets the highway. Please note the construction of the flares is to ease the turning manoeuvre of vehicles turning in and out of the site and must be constructed to the radius as shown on the attached Diagram 2.
 - (c) A culvert pipe of not less than 200mm diameter to be laid in the water table at a minimum of 150mm below the carriageway surface.
 - (d) A compacted AP40 basecourse layer (to TNZ M/4 Specification) of not less than 150mm.
 - (e) A first coat chip seal (to TNZ P/3 Specification) applied to the finished surface area as defined in (a) above.
6. In accordance with Section 128 of the Resource Management Act 1991, the conditions of this consent may be reviewed within 10 working days of each anniversary of the date of this consent, if, on reasonable grounds, the consent authority finds that:

- (a) there is or is likely to be an adverse environmental effect as a result of the exercise of this consent, which was unforeseen when the consent was granted.
- (b) monitoring of the exercise of the consent has revealed that there is or is likely to be an adverse effect on the environment.
- (c) there has been a change in circumstances such that the conditions of the consent are no longer appropriate in terms of the purpose of the above Act.

The review is particularly applicable to the operation of the accessway to determine the number of vehicle manoeuvres from the accessway. Should the operation give rise to more than 30 vehicles per day (ie 15 trips to the airstrip), or expand in the future, for example to attract passing traffic directly off State Highway 6 (instead of having clients arrive by courtesy coach), then the access should be formed to Transit New Zealand's Diagram 4 standard as attached.

Note: The applicant should liaise with the Otago Regional Council to determine whether a discharge consent is required for the existing septic tank system.

Reasons for the Decision

It was considered that the effects of the activity on the environment would be no more than minor when subject to the conditions recommended, taking into consideration the written approval of those considered to be potentially affected by the activity.

To ensure that the operation remained at the present scale and intensity given the potential adverse impact on residents in the area from aircraft noise it was considered appropriate to limit the operation to the use of two aircraft at any one time as a condition of consent.

In order to mitigate the effect of the activity on the safe and efficient operation of the State Highway, the sealing of the access way in accordance with Transit New Zealand's minimum standards was required.

It was considered that the activity is appropriate to the amenities of the area and was not contrary to the objectives and policies contained within the Transitional and Proposed District Plans.

Other Matters

This resource consent is not a consent to build under the Building Act 1991. A consent under this Act must be obtained from the Building Department before construction can begin.

This resource consent must be exercised within two years from the date of this decision subject to the provisions of Section 125 of the Resource Management Act 1991.

The costs of processing the application are currently being assessed and you will be advised under separate cover whether further money is required or whether a refund is owing to you.

Please note that the consent holder will be required to meet the costs of monitoring any conditions contained in this consent. A initial deposit will be charged with further inspection costs based on actual time costs. Please contact the Enforcement Department when the conditions have been met or if you have any queries with regard to monitoring of your consent.

Should you not be satisfied with the decision of the Council an objection may be lodged in writing to the Council setting out the reasons for the objection under Section 357 of the Resource Management Act 1991 not later than fifteen (15) working days from the date this decision is received. Alternatively an appeal may be lodged with the Environment Court, Justice Department, PO Box 5027, Lambton Quay, Wellington not later than fifteen (15) working days from the date this decision is received.

If you have any enquiries please contact Charlotte Almond on phone (03) 442 7330.

Yours faithfully

J Edmonds
DISTRICT PLANNER

MACALISTER TODD PHILLIPS

BARRISTERS SOLICITORS NOTARY

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19 August 1996

The Chief Executive Officer
Queenstown-Lakes District Council
Private Bag 50072
QUEENSTOWN

Dear Sir

RESOURCE CONSENT APPLICATION - PARACHUTE ADVENTURE LTD - SKYDIVE TANDEM

We enclose for your consideration and approval a resource consent application prepared on behalf of the abovementioned.

The Proposal

Resource consent is sought to operate a commercial parachute and associated transport operation from an existing airstrip on Remarkables Station.

The airstrip is located approximately 10 kilometres from the Queenstown Airport along State Highway 6. It is sited approximately mid-point between Jacks Point and State Highway 6 on Remarkables Station (owned by D and J Jardine). The site is not visible from the State Highway.

We enclose for your information a detailed drawing of the area and topographic map.

Parachute Adventure Queenstown Ltd was established in 1990. The company's product, tandem skydiving, is a high adventure activity, ideally suited to Queenstown's adventure tourism market. The company maintains a professional approach to the operation focussing on providing a high quality and safe experience.

The company employs up to 12 staff full time/part time during peak season. Staff and contractors' positions are held in operations, marketing and administration.

The company supports the local and national tourism industry by actively participating in the promotion of Destination Queenstown, New Zealand. The company is affiliated to the Queenstown Winter Marketing Group, Wakatipu Aero Club, New Zealand Tourism Industry Association, Inbound Tourism Operators' Council, New Zealand Adventure Tourism Council and New Zealand Parachute Federation. The company has recently been involved in assisting the Qualifications and Standards Authority in setting general adventure aviation standards.

The company has established a building on site (see attached resource consent approval). Landscaping in the form of trees and shrubs, and an irrigation system complement the building

complex. The building is self contained. All communication from this facility is via cellphone or portable radio.

All power to the building is supplied by generator and is used only when power is required. An existing septic tank is utilised. Drinking and utility water is supplied from a farm line, the water is collected directly off the Remarkable Mountains. Any rubbish generated is collected and removed from the site weekly and taken to a waste collection point.

Hours and Frequency

The company operates 364 days per year subject to the seasonal fluctuations of tourist demand and to weather suitability. Whilst the maximum number of flights made in any one day has been 35, the average number of daily flights is 18 during peak periods and substantially less during off peak periods for example flights have been as few as 38 for the entire month of June.

Inoperable days, due to poor weather conditions reduce operations by approximately 38% per annum.

The percentage of days lost over the previous four years are:

1992 - 1993	-	42.7%
1993 - 1994	-	38.4%
1994 - 1995	-	35.3%
1995 - 1996	-	38.3%

It is important to note that while the applicant operates approximately 226 days of the year (ie, 62%) these days are not necessarily full days, many are part days due to weather changes during the day or lack of demand.

Hours of operation for parachuting are specified by the director of Civil Aviation, the applicant operates within these hours. That is:

Within 20 minutes of MCT - Morning Civil Twilight
Within 20 minutes of ECT - Evening Civil Twilight

The company predominantly uses small single engine Cessna aircraft. The company ensures their flight paths minimise aircraft noise to local residents. Jardine's' airstrip is the only strip in the Wakatipu Basin clear of scheduled flight paths.

The parachute drop zone has been established in a rural area with no immediate neighbours. The company has in place a standard flight plan with Airways (memorandum of understanding - copy enclosed) which ensures the aircraft has a clear flight path away from built up areas. This limits the impact of aircraft noise.

**RESOURCE MANAGEMENT ACT CONSIDERATIONS
LAKES QUEENSTOWN WAKATIPU COMBINED TRANSITIONAL DISTRICT PLAN**

The application site is zoned Rural B in the Transitional District Plan.

Rules 7.01, 7.01A.1 and 7.02 specify permitted, controlled and discretionary activities for the zone - stating that they are to be those specified for the Rural A zone.

Rule 6.02(b) "Conditional uses - Rural A zone" provides as follows:

"Camping grounds, halls and generally buildings and land for or connected with indoor or outdoor recreation."

The Transitional District Plan does not provide a definition of indoor or outdoor recreation, however we refer to the decision of Queenstown Bungy Centre Ltd v Queenstown-Lakes District Council C/98/91 whereupon the Planning Tribunal held that an application to erect a platform for bungy jumps and such associated activity came within the abovementioned rule. We note that Section 2 of the Resource Management Act defines land as including land covered by water, and the airspace above land.

On this basis we submit that transportation by aircraft of parachutists up into the air and the associated skydiving from such aircraft is an outdoor recreation activity and thus falls within the definition of Rule 6.02(b).

With reference to the abovementioned we also note the Planning Tribunal decision of Glentanner Park v MacKenzie District Council W050/94. The appeals were bought by operators of tourist air services and airports in and about Mt Cook National Park, against consent to enable glacier helicopters to establish a heli-port and associated facilities at Ferintosh Station, State Highway 8 near the western bank of Lake Pukaki. The applicant company operated tours on the West Coast and undertook flights over the divide but did not have landing and take off rights anywhere east of the divide. A determination under Civil Aviation rules acknowledged that the proposed heli-port would not adversely affect the safe and efficient use of the airspace, nor the safety of persons on the ground.

The site in that case was zoned Rural 1 and was part of a large sheep station. The council in that case had treated the proposal as a non complying activity. Significantly within the Rural 1 zone for the MacKenzie District Council, "buildings and land for or connected with indoor or outdoor recreation" were discretionary uses.

The Tribunal held that the activities proposed by the applicant were outdoor recreation and the Tribunal was not prepared to artificially restrict the meaning by reference to zones where more specifically defined activities could be undertaken as of right.

With respect to the present application there are no policies, objectives or explanations relevant to the recreational activity proposed by this application. The following general rural zone objectives and policies are however relevant to this application.

The general statement for the rural zones is as follows.

“The committee recognises that production from the land including agriculture, horticulture, orcharding and forestry combined with tourism will be the main components of the district’s economy. Accordingly objectives, policies and ordinances have been developed to promote the welfare of both spheres and encourage the development in a complementary manner.”

The following objectives are of relevance.

- To ensure that those areas of particular interests to tourists and visitors are protected and safeguard the amenities of the rural parts of the district.
- To encourage the development of non farming uses appropriate to the amenities of the rural zones in appropriate locations.

The following policies are relevant.

- The protection of those features in the rural area which are of particular interest to tourists and visitors to the area.
- To provide for a range of non farming activities within the rural part of the district, including the extraction of materials and forestry.

With respect to the abovementioned we note the following.

As stated above the existing airstrip and existing complex used in association with the activity is not visible from State Highway 6. We do not believe the rural amenities of this part of the district will be compromised by undertaking tandem skydiving. With respect to this matter we refer to the abovementioned decision of Queenstown Bungy Company v Queenstown-Lakes District Council whereby the proposed activity in that case was situated on a prominent hillside directly above and highly visible from the Queenstown town centre, and tourists and visitors to the district.

The flight paths used in association with the skydiving activity are distanced from built up areas. The applicants have a Memorandum of Understanding with Airways which defines airspace separate from mainstream traffic. Flight paths for the activity are specified in the applicants’ operations manual ensuring that any aircraft that fly’s over dwelling houses in the area does so in a manner that ensures noise to residents is kept to a minimum. The airstrip on Remarkables Station is the only strip in the Wakatipu Basin clear of scheduled flight paths.

Proposed Plan Change 99 Lakes Queenstown Section

The application site retains its Rural B zoning in the proposed plan change. The proposed plan change retains Rule 6.02 (b) and inserts new criteria with respect to assessment matters for discretionary activities - landscape values where any building activity is contemplated.

The proposed plan change inserts a range of new policies and objectives for the rural zones. In particular Objective 4 - commercial, industrial, service, recreational and accommodation activities - is relevant to this application.

"The establishment of commercial, industrial, service, recreational and accommodation activities that are compatible with the lower density rural environment, where no reasonable alternative exists in areas designated for the activities."

The following policies are also of relevance:

2. *To enable the establishment in the rural area of those commercial, industrial, recreational and accommodation activities that can establish a need for a rural location, in terms of scale, effluent disposal requirements, use of or relationship to rural resources, or effects that are inappropriate in an urban environment."*

With respect to the abovementioned, as stated above, the location of the activity on the property known as Remarkables Station is necessary to contain effects appropriate to the rural, as opposed to urban environment. As stated above, the Jardine's airstrip is the only airstrip in the Wakatipu Basin clear of scheduled flight paths, and which is sufficiently distanced from built-up areas to avoid adverse noise as a result of the skydiving operation. The continued success of this activity as a major tourist activity in terms of customer satisfaction and community acceptance is reliant on the rural location of the activity.

QUEENSTOWN LAKES DISTRICT COUNCIL - PROPOSED DISTRICT PLAN

The site from which the activity takes place is zoned Rural Downlands in the Proposed District Plan. The purpose of the zone is as follows:

"The purpose of the rules in this zone is to provide for diverse farming activities, as well as providing opportunity for recreation, tourism, tree planting, mining and limited commercial and industrial activities. However, the zone anticipates that these activities will be carried out in a way that protects and enhances the nature conservation and landscape values of the zone."

For the purpose of this application, we note the following definition of recreational activity, and commercial activity contained within the Plan:

"Recreational activity - means the use of land and/or buildings for the primary purpose of recreation and/or entertainment, but excludes any recreational activity within the meaning of residential activity."

"Commercial activity - means use of land and/or buildings for display, offering, provision, sale etc. but excludes recreation, community and service activities."

By definition then the proposed activity is a recreational activity, and even though payment is required it is not defined as a commercial activity (recreational activity being specifically excluded from the definition of commercial activity).

Rule 5.5.3.3(iv) provides that recreational activities (other than on the surface of water bodies) are discretionary activities. We note further that rule 5.5.3.3(v) provides that the take-off or landing of any motorised aircraft is also a discretionary activity.

With respect to the assessment matters specified at rule 5.6.2(xv) and (xvii) we note the following:

- The proposed activity will not result in levels of traffic or pedestrian activity which are incompatible with the character of the surrounding rural area. Passengers are transported to the airstrip by courtesy coach, thereby reducing the potential number of vehicles entering and exiting the site. We note there is no signage associated with the activity at the application site.
- As the activity depends upon motorised aircraft to transport participants to approximately 8,000 feet, the noise emanating from such aircraft is an actual effect of the activity. We note however, the airstrip is separated from the nearest neighbour (over 2 kilometres) by rolling hills. The aircraft altitude is usually 1,500 feet above ground before it crosses Jardine's boundary and there are no residents within 2 kilometres of take-off and landing approaches.

We note that the applicant company recently upgraded its aircraft engine one and a half years ago, replacing the previous engine with a new, improved model motor. This model boasted 20% better fuel economy and a 20% reduction in noise, coupled with an increase in constant power.

- The activity does not result in the loss of privacy, amenity values or a sense of security for residents within the rural environment. Passengers are taken to a height of approximately 8,000 feet whereupon they leave the aircraft and commence their thrilling journey to the ground. Tandem skydivers land on Remarkables Station in the vicinity of the airstrip where they do not then enter on neighbouring properties.
- The applicant company operates under the most stringent of safety controls and has in place through its operations manual a comprehensive safety and equipment check procedure. The applicant company has in place a Memorandum of Understanding with Airways which defines airspace separate from mainstream traffic, thereby reducing the potential for conflict between operators.
- The applicant company is the only one of its kind to offer this unique experience in the Wakatipu Basin area.

With respect to assessment matters for aircraft we note the following:

- The area surrounding the site is characterised by rural farming activities. As acknowledged by the Plan (page 5/76), the use of aircraft for rural purposes such as topdressing, spraying and mustering, for example, are considered to be an acceptable part of the rural environment.

- Frequency of aircraft movements from the site will be less than that of aerial topdressing planes (Making a total of at least five takeoffs and landings per hour compared to approximately 1 -1.5 trips per hour by the applicant).
- We do not believe noise from aircraft will adversely affect pleasant use and enjoyment of the surrounding environment by residents and visitors. The site is located near the shores of Lake Wakatipu and aircraft could possibly be heard by those boating on the lake however considerable less than could be heard flying over Queenstown.

Finally, we note Objective 3 (page 5/25). Objective 3 addresses rural amenity values and provides as follows:

“Protection of rural amenity by encouraging the establishment of a range of activities which require a rural location, but that do not create unacceptably unpleasant working or living conditions for the District's residents and visitors, nor a significant deterioration of the quality of the rural environment.”

The following policies are of relevance to this application:

1. *To recognise that permitted activities in rural areas may result in effects such as noise, dust and traffic generation, which will be noticeable to residents in the rural areas.*
5. *To avoid or mitigate the effects of activities that can cause unpleasant living or working conditions for other people in the rural community, or that cause other significant adverse effects to the environment.*

With respect to the abovementioned objectives and policies, we do acknowledge the potential for noise effects as a result of the associated take-off and landing of aircraft in association with the tandem skydiving activities. We believe, however, it is appropriate that such an activity be located in a rural zone. The airstrip is located some 2 kilometres away from the nearest neighbouring residence by rolling hills and trees which absorb noise.

By the very nature of the activity - being the take-off and landing of aircraft and skydiving activity it is desirable that such be located in the rural area by fact of separation of dwelling houses and the ability of the rural environment to sustain a higher level of noise.

With respect to objective 4 - commercial, industrial, service and recreational activities - we refer to the abovementioned discussion of such objective. [As per proposed Plan Change 99 analysis].

We note that the applicant company has operated in this area for six years and has never had a complaint in relation to noise from aircraft activity. By this application the applicant company in accordance with the Proposed District Plan [prepared in accordance with the Resource Management Act] seeks to regularise its existing operation. We note there is potential for significant adverse effects to result from the activity by way of noise. As will be discussed below, we believe the location of the activity and the Memorandum of Understanding that exists between Airways and the applicant company, renders any activities as a result of the tandem parachuting operation minor.

SECTION 104(i)(a) - ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

Actual and potential effects

Parachute Adventure Queenstown Limited was established over six years ago by two parachute enthusiasts, both were from a professional background and believed that high adventure was well suited to the Queenstown tourism market. The company maintains a professional approach to the operation focussing on providing a high quality experience.

The company, although small, endeavours to support the local and national tourism industry by actively participating in the promotion of Destination Queenstown, New Zealand. The company is New Zealand Way branded and Kiwihost licensed.

We believe the continuing operation of this company offering a unique high adventure product is beneficial to the continued appeal of Queenstown as a high adventure tourism town.

Potential adverse effects to result from the activity are, of course noise, and safety.

With respect to safety, we note that the applicant company has a Memorandum of Agreement with the Airways Corporation which defines airspace separate from mainstream traffic and paths distanced from built-up areas. The company has an impeccable safety record. As stated above, the applicant's operation manual details operational procedure, codes of practice, has a crisis management plan and all other necessary information to ensure the continued safe operation of this activity.

With respect to noise, we note the applicant company has operated in this area of the District for six years and has never received a complaint relating to noise. The airstrip is separated from its nearest neighbour (over 2 kilometres) by rolling hills and trees. Aircraft altitude is usually 1,500 feet above ground before it crosses Jardine's boundary, and there are no residents within 2 kilometres of take-off and landing approaches. We note that the legal height specified for flying over buildings is 1000 feet, and that in the particular area of the District that the application site is located there is an established "Low Flying Area" (established in the 1960's). We note such areas are publicly notified and put in place with the landowner concerned) whereupon aircraft are permitted to fly as low as 500 feet.

Ground movements are minimal, and will not be heard outside the boundary of the application site.

The applicant recently upgraded its aircraft engine, replacing the previous engine with a new, improved model motor. This model boasts a 20% better fuel economy and a 20% reduction in noise coupled with an increase in constant power.

Where the activity involves the discharge of contaminants

As stated above, an existing septic tank effluent disposal system has been installed on the site and is available for use by passengers/customers. This system was designed and installed in accordance with Council standards.

A description of the mitigation measures

No specific measures are proposed as a means of mitigating potential effects on the environment other than perhaps the continued monitoring of the activity by the Council to ensure the noise emission remains at an acceptable level.

An identification of those persons interested in or affected by the proposal, the consultation undertaken and any response to the views of those consulted

The following parties are currently being consulted and are considered to be potentially affected, or have an interest in the application:

- ✓ Remarkable Lodge
- ✓ Henley Downs Limited
- ✓ D and J Jardine
- ✓ Remarkable Estate Limited
- ✓ Airways Corporation
- ✓ Destination Queenstown - Tourism
- ✓ Carlin

✓ Wakatipu Aero Club

In an effort to have this application processed on a non-notified basis, we are now endeavouring to gain the written consents of the abovementioned.

Any monitoring that is proposed

As stated above, the District Council may see it as appropriate to monitor the exercise of this consent to ensure noise levels are maintained at an acceptable standard.

PART II - RESOURCE MANAGEMENT ACT

The purpose of the Act is to promote the sustainable management of natural and physical resources.

We do not believe Resource Consent approval to allow the continuation of the applicant's operation compromises any of the matters contained within Section 5(2)(a), (b) or (c).

There are no other suitable strips in the area separate from mainstream air traffic in a low density populated area that are suitable and that can sustain the existing activity. We note that the QLDC has previously given consent to establish a building at the site in association with the parachuting operation, and consent to the continuation of the activity is appropriate in this context.

The applicant, over the past six years, has made a significant contribution to employment, tourism and to the local economy.

We do not believe any of the matters contained within Section 6 or Section 7 of the Act are compromised by the existing activity.

SECTION 105

In summary, we note the following points.

- The existing activity is located in the rural environment quite some distance from the existing "built" area of Frankton. It's nearest residential neighbour is located some 2 kilometres from the existing airstrip. Aircraft altitude is 1,500 feet above ground level before it crosses the Jardine's boundary. Effects on the environment from the existing operation are therefore considered minor.
- The existing activity on the site is in accord with the policies and objectives of the Transitional District Plan, Plan Change No. 99, and the Proposed District Plan.
- Skydive Tandem "The Ultimate Jump" is a high adventure activity that is ideally suited to Queenstown's adventure tourism market. The applicant company is the only one of its kind offering this unique experience in the Wakatipu Basin area, and it has made a significant contribution to employment, tourism and the local economy.

SECTION 94(2)

In conclusion, we would ask that the application be processed on a non-notified basis. As stated above, the applicants have been operating from this part of the District for a period of six years. Like many of the recreation and high adventure tourist based activities in the Basin - for example activities using the surface of water bodies, the applicants- following the introduction of the Resource Management Act, and the preparation of a new District Plan under such, seek to regularise their existing and established tourism activity.

As stated above, we are presently corresponding with a number of persons and bodies whom we believe to be both potentially affected by the application.

We believe the continued operation of the skydiving activity from the site will have only a minor effect on the environment.

On this basis we enclose the required non-notified deposit consent fee, being \$445.00.

Please do not hesitate to contact us should you require further information.

Yours faithfully

MACALISTER TODD PHILLIPS


J. Macdonald/G M Todd

BEFORE THE ENVIRONMENT COURT
ENV-2012-CHC-116

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of a direct referral by Skydive Queenstown Limited for a resource consent application to operate a commercial parachute and associated transport operation at Remarkables Station, State Highway 6, Queenstown

STATEMENT OF EVIDENCE OF JEREMY WILLIAM TREVATHAN
DATED 14 MARCH 2013

1.0 INTRODUCTION

- 1.1 My name is Jeremy Trevathan. I am an Acoustic Engineer and Director of Acoustic Engineering Services Limited, an acoustic engineering consultancy based in Christchurch. I hold the degrees of Bachelor of Engineering with Honours and Doctor of Philosophy in Mechanical Engineering (Acoustics) from the University of Canterbury. I am an Associate of the New Zealand Planning Institute, and a Member of the Acoustical Society of New Zealand.
- 1.2 I have eight years' experience in the field of acoustic engineering consultancy and have been involved with a number of

environmental noise assessment projects throughout New Zealand. I have previously presented evidence at Council and Environment Court Hearings, and before Boards of Inquiry. I have acted on behalf of applicants, submitters and as a peer reviewer for Councils.

- 1.4 I have read and am familiar with the Code of Conduct for Expert Witnesses in the current (2006) Environment Court Practice Note. I agree to comply with this code of conduct in giving evidence to this hearing and have done so in preparing this written brief. The evidence I am giving is within my area of expertise, except where I state I am relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed. I understand it is my duty to assist the Court impartially on relevant matters within my area of expertise and that I am not an advocate for the party which has engaged me.
- 1.5 On this occasion I have been engaged by Jacks Point Residents and Owners Association (JPROA) to provide expert advice based on the proposal by Queenstown Skydive Limited (QSL) to operate a commercial parachute and associated transport operation at Remarkables Station, State Highway 6, Queenstown.

2.0 BACKGROUND AND OVERVIEW

- 2.1 The background of this matter is described more fully in the evidence of others.
- 2.2 In summary QSL currently operate under a consent granted in February 1997 which limits them to the use of two aircraft at any one time, and a maximum number of flights per day of 35.
- 2.3 In December 2009 QSL applied to replace these conditions with one which read:

“The noise from aircraft operations (aircraft taking off, climbing and landing) shall not exceed Ldn 50 dBA (seven day average) at any Jack’s Point residential section (as shown in the 2009 Masterplan) or at the Jardine Homestead. If required by the Council, compliance shall be determined by calculations from the log book records of aircraft type and the number of daily flights over any 7 day period and measurement of a day’s activity to determine single event noise levels for each type of operation. The measurements of single event noise shall be carried out in accordance with New Zealand Standard NZS 6801:2008 “Measurement of Environmental Sound”.

- 2.4 That application was withdrawn. QSL have now applied for a new consent, and proposed a draft condition (page 10 of the evidence of Mr Day) which reads:

The noise from aircraft operations (idling, taxiing aircraft taking off, climbing and landing) shall not exceed 5 dB Ldn (seven day average) at any Jack’s Point residential section (as shown in the 2009 Masterplan) or at The Lodge, or at the Jardine Homestead. If required by the Council, compliance shall be determined by calculations from the log book records of aircraft type and the number of daily flights over any 7 day period and measurement of single event noise levels for each type of operation. The measurements of single event noise shall be carried out generally in accordance with New Zealand Standard NZS 6801:2008 “Measurement of Environmental Sound”.

The number of flights per day shall not exceed 50 averaged over a 7-day period and 75 in any one day.

The operator shall provide to Council a Noise Management Plan that includes the number of flights possible with each specific aircraft type , details of the flight log requirements and details of the circumstances under which measurements need to be.

- 2.5 I expect the reference to “5 dB Ldn” in this draft condition is a typographical error, and based on the content of Mr Day’s evidence assume it was supposed to read “55 dB Ldn”.
- 2.6 Mr Day contends that the most significant material considerations in relation to the reasonableness of what is now proposed are:
- The noise levels which were generated in areas adjoining the airfield by the Cessna piston engine aircraft which were originally used by QSL.
 - The similarity of the proposed 55 dB Ldn limit to table 2 of NZS6805:1992 and “international research”.
 - The ability of the noise to “fit reasonably well within the general ambient noise level in the area”.
- 2.7 I will now discuss the February 1997 consent, my observations and measurements of the current QSL operation, and finally the proposal of Mr Day.
- 2.8 I will conclude that there have been significant changes to both the sound source and receiving environment, compared to the situation considered during the 1997 consent process. The situation is now worse with regard to noise levels received at residential dwellings.
- 2.9 I will present the outcomes of my site measurements which indicate that the current QSL operation generates noise levels of up to 58 dB Ldn at the closest residential locations.
- 2.10 Therefore, while I agree in general terms that a noise limit of 55 dB Ldn is appropriate at these locations, mitigation with regard to both ground idle noise and aircraft flight paths will be required if this limit is to be complied with for the current level of QSL

activity, let alone with any increases in activity.

- 2.11 I conclude based both on my analysis and the evidence of Mr Fogden that no credible mitigation proposal has been put forward by QSL and that therefore the effect of the 55 dB Ldn proposed limit would be to limit the number of flights to 16 on any day.

3.0 1997 CONSENT

- 3.1 The 1997 application, officer's report and decision state that at that time the closest dwellings were over 2 kilometres distant, and screened by topography from the airfield.

- 3.2 Even with this being the case, the decision includes a limitation in the number of aircraft and daily flights explicitly to control noise effects.

- 3.3 Based on the measurements of the Cessna Piston aircraft reported by Mr Day, with these restrictions in place the aircraft noise levels would have been less than 45 dB Ldn on a peak day at those nearest residential locations, and based on the operational data provided by QSL, the 7-day average noise levels would typically have been 5 dB below this.

Changes to the noise source

- 3.4 Changes have since been made to the QSL operation. The aircraft now used are quieter in the air. However they climb to altitude more rapidly and therefore return to the airfield more frequently, so more noise events are experienced in the vicinity of the airfield during a given operating window.
- 3.5 The 1997 application also records that the Cessna piston engine aircraft generated little on-ground noise. This is confirmed in the

evidence of Mr Fogden. On the other hand, the Cessna Supervan 900 turbine aircraft now used by QSL generates significant on-ground noise. As described in the evidence Mr Fogden, this is a well-known trait of this aircraft. This ground idle noise was clearly evident during my site investigations as I will describe in section 4.0 of this evidence.

- 3.6 It is therefore apparent it is too simplistic to state the noise situation has improved with the change from the Cessna piston engine aircraft to the Cessna Supervan 900.
- 3.7 This is illustrated in the measurements I made at the southern boundary of the residential site at 39 Hackett Road (which receives high levels of ground idle noise) which indicate that 35 flights per day of the Cessna Supervan 900 would generate a noise level of 58 dB Ldn, whereas table 2 of Mr Day's evidence records that the older Cessna piston aircraft would have generated only 56 dB Ldn in this location for 35 flights per day (and it seems unlikely that the older, slower aircraft would have been able to complete 35 flight per day).

Changes to the receiving environment

- 3.8 In addition to the above, changes have also occurred to the receiving environment since the 1997 consent was granted. Specifically, a number of noise sensitive activities have been legally established in closer proximity to the airfield. I understand that the owners and occupiers of these sites have not provided affected persons approvals in relation to this new application.
- 3.9 The Jack's Point Resort Zone provisions do not include any requirement to accept future proposals by QSL to vary their operation or include any requirements for specific mitigation against aircraft noise.
- 3.10 These locations are shown in Attachment 1 appended to this

evidence. This image also shows the various flight tracks discussed in section 4.0 of this evidence.

- 3.11 Noise sensitive locations include Jack Point Lodge (300 m horizontally from departure path, and directly below arrival path B), the Jacks Point “The Preserve” subdivision (Lot 14 The Preserve is 65 metres horizontally from the departure flight path, and 65 metres horizontally from arrival path A) and smaller residential Lots in Jack’s Point *Neighbourhood 4* on Jack’s Point Rise, Brett Lane and Hackett Road (300 to 400 metres from the airstrip and ground idling area). Holes 2 and 5 of the Jack’s Point Golf Course are directly under the departure track, and directly under some arrival tracks.
- 3.12 I therefore agree with Mr Day that the noise effects of this proposal will be different to those of the 1997 proposal. However in terms of expected noise levels at the nearest residential sites, it is quite clear that what is now being proposed is worse in terms of noise effects than the situation contemplated during the original 1997 consent, from which the 35 flight per day and 2 aircraft restriction arose.

4.0 EXISTING SITUATION

- 4.1 I spent two full days observing the QSL operation on the 28th and 29th of September 2012, and a further day on the 29th of January 2013. On the 29th of January 2013 I was accompanied by Dr Stephen Chiles. On all of these days a Cessna Supervan 900 was operating. I measured noise levels at a large number of locations, including those previously considered by Marshall Days Acoustics (MDA), as described below.
- 4.2 MDA have also completed four “noise surveys” in relation to the QSL operation, as follows:
- Attended noise monitoring in 2009 restricted to the QSL site,

and relating to only the Cessna piston engine aircraft, and a “Cresco” aircraft (which is now not used by QSL).

- Attended noise monitoring in April 2010 at sites in the vicinity of The Lodge, The Village and residential lots on Jack’s Point Rise relating to only the Cessna piston engine aircraft, and Cresco aircraft.
- Attended noise monitoring in March 2011 only at The Village and The Lodge, relating to the Cresco and Cessna Supervan 900.
- Unattended noise monitoring 6 June to 5 July 2011 at The Lodge, relating to the Cessna piston engine aircraft, Cresco aircraft and Cessna Supervan 900.

I do not know if Mr Day was in attendance on any of these occasions.

- 4.3 Some degree of confusion is evident in the reporting of flight paths and assessment locations relevant to the various noise surveys. I will now clarify these matters. I will then discuss my site observations and measurements.

Clarification regarding flight paths

- 4.4 I have appended as Attachment 1 an aerial photograph which includes an overlay of the Jack’s Point development, and shows noise assessment locations and aircraft flight paths.

Departure flight path

- 4.5 My understanding is that the departure flight path for the Cessna Supervan 900 is always as shown in Attachment 1. This is consistent with all my site observations, and all of the material

produced by MDA.

Arrival flight path

- 4.6 A letter from MDA to Mr Williams dated 25 February 2010 first discussed different arrival flight paths. This letter had a helpful figure attached which illustrated two arrival paths (I have shown these as arrival path A and arrival path B in Attachment 1). The MDA letter stated that “Arrival A is a straight track used in most situations” and “in recent times NZONE has been using an alternative track (Arrival B) to reduce over-flying the golf course”.
- 4.7 This is consistent with my site observations, where in September 2012 arrival path A was in use for the full two days, whereas in January 2013 the arrival path B (or a reasonable dispersion from it as shown in Attachment 1) was used.
- 4.8 The issue has however been complicated by the figure which Mr Day has included as “Figure 4” in his evidence which appears to show a third arrival flight path (I have overlain this on attachment 1 and it is labelled arrival path C). This figure was originally accompanied by an explanation in a letter from Mr Day to Dr Chiles dated 21 March 2012 where Mr Day explains that the two arrival flight paths observed during their June / July 2011 survey were “a straight in approach directly over the Lodge” and a “noise abatement track” which flies “in from the South and joins the runway centreline just to the east of the Lodge site”. “Straight” and “curved” annotations are accordingly included in the records of the MDA June / July 2011 measurements.
- 4.9 While it seems inherently confusing to describe arrival path B as “straight”, from both the explanation provided by Mr Day as recorded above and the measured noise levels at The Lodge it seems clear that this is the terminology adopted from that point on by MDA. The true “straight” path (arrival path A) is not discussed further in the MDA documents.

- 4.10 The description of the latest “noise abatement track” provided by Mr Day in the 21 March 2012 letter seems to match up with arrival path C which Mr Day has now shown in his evidence. This also matches up with the MDA Lodge measurements, where arrival path C produces lower noise levels at The Lodge than arrival path B.
- 4.11 As above, I observed only arrival paths A and B in use during my site visits.
- 4.12 There is no comment or commitment in any of the evidence produced by QSL as to which arrival flight path is now used or preferred. I will discuss the significance of the arrival flight path later in my evidence.

Clarification regarding assessment locations

The Preserve

- 4.13 The Preserve has been discussed in a number of the documents produced by MDA. In his evidence Mr Day does not present measured or calculated noise levels at The Preserve (he does include it as a relevant residential location in his paragraph 6.3) and states in paragraph 4.4 “Other potential sites such as “The Reserve” (sic) are further away and will have lower noise levels”.
- 4.14 The boundary of Lot 14 the Preserve is shown on Attachment 1. As outlined in paragraph 3.11 above, this is the closest residential site to the aircraft flight path by some margin.

Jack’s Point Residential

- 4.15 As shown in Attachment 1, three different locations have been referred to in the MDA reports as “Jacks Point Residential”. The first (MDA JRP1 in Attachment 1) is the only location where measurements have been undertaken by MDA (in April 2010, when

the Cessna Supervan 900 was not in operation). MDA JPR2 is the location of the assessment position shown in Figure 1 of the evidence of Mr Day. MDA JPR3 is the location of the assessment position shown in a figure attached to a letter dated 25 February 2010 from Mr Day to Dr Chiles after he had asked for clarification of the exact monitoring positions. MDA did not measure noise levels from the Cessna Supervan 900 in any of these locations.

- 4.16 As I will discuss below, due to the high levels of ground idle noise produced by the Cessna Supervan 900, the southern boundary of 39 Hackett Road (shown in Attachment 1) is the most relevant assessment location in terms of “Jack’s Point Residential”.
- 4.17 The fact that MDA only undertook measurements at MDA JPR1 (and not at MDA JPR2 or MDA JPR3 as the material they subsequently produced suggested) is significant in explaining why they did not observe significant levels of ground idle noise, as I will explain in paragraph 4.20.

Other locations

- 4.18 Other locations which I consider to be relevant are The Lodge site and holes 2 and 5 of the Jacks Point Golf course. I have shown these locations in Attachment 1.

Summary of site observations and measurements

- 4.19 During my time on site, my principle subjective observations were that:
- Within 750 metres of the eastern end of the runway aircraft ground idle noise was significant, lasting for 5 to 15 minutes per flight. Based on the evidence of Mr Fogden and the clarification of the actual MDA “Jack’s Point Residential” location above, I expect that significant ground idle noise was

not observed during the MDA measurements as the Cresco aircraft generates significantly lower levels of ground idle noise and the actual measurement location was a significant distance from the eastern end of the runway, and. As outlined in paragraph 4.15, the later MDA surveys when the Cessna Supervan 900 was flying did not consider assessment locations at the eastern end of the runway.

- At the Lodge, on the Golf Course and at Lot 14 the Preserve locations aircraft noise was significant during aircraft flyovers, but was reduced if the flight track did not pass directly over the observation point (i.e. reduced at The Preserve if arrival path B was used, and reduced at The Lodge if arrival path A was used).

- Airborne aircraft were audible for a portion or all of each flight. Other ambient noise in the area includes distant traffic noise at some locations, other aircraft noise both distant and flying over, sound associated with the natural environment, residential activities and with the golf course (producing noise levels in the order of 30 to 50 dB LAeq). Subjectively however, I was surprised at how distinctive and audible the noise from the aircraft at altitude was, having before my visit read Mr Days statement that “this level of aircraft activity will fit in to the general ambient noise level in the area.” (As above it is however unclear if Mr Day has personally observed the QSL operation). By way of illustration Attachment 2 shows the ambient noise levels measured at the southern boundary of 39 Hackett Road for a 90 minute period, the last 15 minutes of which capture the commencement of the QSL activity.

4.20 Objectively, my measurements indicated that:

- Under neutral / slightly assisting wind conditions the noise level associated with 35 flights of the Cessna Supervan 900 at 39 Hackett Road is 58 dB Ldn based on the typical operation |

observed. Noise levels are lower under upwind conditions, however considering the short-duration assessment proposed here (with controls relating to both one day and seven day periods) assessment under at least neural conditions is appropriate, in accordance with NZS6802:2008. This noise was dominated by ground idle. As I will discuss in paragraph 5.3 of this evidence, in his reports and evidence Mr Day has suggested aircraft noise levels in the order of 50 to 55 dB Ldn are appropriate in such an environment. I agree.

- If assessed against the District Plan limits, ground idle noise would exceed the daytime limit by over 10 dB. For 35 flights this elevated noise would be present for a combined period of 4 hours in a day.

- At the “Jacks Point Residential” location previously considered by MDA for the Cresco, noise levels were measured to be 53 dB Ldn for the Cessna Supervan 900. This is significantly different to the 44 dB Ldn Mr Day reports for the Cessna Supervan 900 at “The Village / Residential” in table 2 of his evidence. MDA appear to have made a significant oversight in assuming the Cresco and Cessna Supervan 900 would produce similar noise levels in the vicinity of the eastern end of the runway.

- On the Golf Course aircraft departing produce a maximum noise level in the order of 85 dB L_{Amax} at Hole 2, and 80 dB L_{Amax} at Hole 5. This noise is sustained at levels which would interrupt speech for approximately 20 seconds during each departure. Aircraft arriving using arrival track A produce a maximum noise level in the order of 88 dB L_{Amax} at Hole 2, and 85 dB L_{Amax} at Hole 5. This noise is sustained at levels which would interrupt speech for approximately 10 seconds during each arrival. Attachment 3A shows the sound level measured on the golf course over a 2 hour period with a number of aircraft over flights. This figure illustrates that in the absence of aircraft noise, noise levels on the golf course are in the order of 30 to 50 dBA including contributions from

golfers themselves. When the aircraft used arrival track B considerably lower noise levels were generated at Hole 5 (15 dB less on average, interrupting speech for only 1 or 2 seconds). Noise at Hole 2 and from departures remains the same.

- At the Lodge Site noise levels 48 dB Ldn were measured if arrival track A used, and 51 dB Ldn if arrival track B was used.
- At Lot 14 The Preserve, noise levels of 55 dB Ldn were measured if arrival track A is used, and 51 dB Ldn if arrival track B was used.

4.21 Details of my measurements taken on the 28th and 29th of September 2012 can be found in the report dated 11 October 2012 which Mr Day has attached to his evidence. Details of the measurements of 29 January 2013 are appended as Attachment 4 to this evidence.

4.22 Based on the above I conclude that the noise levels generated by the current QSL operation are at or above 55 dB Ldn due to the level of ground idle noise produced by the Cessna Supervan 900, and the arrival flight paths I observed in use.

5.0 THE CURRENT PROPOSAL (AS PER THE EVIDENCE OF MR DAY)

5.1 The current proposal as outlined in the evidence of Mr Day would see the 7 day average noise level restricted to 55 dB Ldn, and the 7 day average number of flights restricted to 50, with 75 on a peak day.

5.2 In his paragraphs 2.2 and 5.5 Mr Day appears to indicate that to some degree his comfort with this solution is based on his analysis even during the peak 75 flight day the noise levels will not actually exceed 55 dB Ldn.

Areas of agreement

5.3 I note that this proposal has changed considerably since the application as notified, and I agree with Mr Day with regard to the following matters:

- Given the unique nature of the QSL operation (compared to an airport), a dual control of both noise level and number of flights is appropriate. This is consistent with, for example the work of Rylander and Bjorkman (appended as Attachment 5) which was produced after the publication of NZS6805 in 1992, and outlines how the use of day / night average noise levels may not be appropriate as a sole descriptor of noise effect for small airfields. A body of similar work has become available since 1992 which suggests, for example, that the time aircraft are overhead correlates as strongly to human response as average noise level for small airfields.
- Again given the unique nature of the QSL operation (as illustrated in the operational data they have now provided for the period November 2011 to October 2012) 3 month averaging as called for in NZS6805:1992 is not appropriate and that 7 day averaging may only be appropriate if there is also a control on a peak day.
- If considering the effects of the operation only in terms of an average noise level, then 50 dB Ldn (as per his 2009 report) or 55 dB Ldn (as now proposed) are in the appropriate range for typical levels received on a day to day basis by those adjoining the airfield.

5.4 I also agree with the observation of Mr Garland in paragraph 8 of his evidence that in this case QSL is not embarking on the full process described in NZS6805:1992. Instead, Mr Day is borrowing the concept of quantifying aircraft noise using the Ldn parameter for the Standard, and placing some weight on an inference from

Table 2 of the Standard that in the area outside the 55 dB Ldn contour for an airport no noise mitigation is necessary as implying that in this case the airfield may modify its operations as it pleases provided levels do not exceed 55 dB Ldn.

- 5.5 If the airfield were engaged in a full NZS6805:1992 process they would instead be working through a Plan Change application, and the operation and its noise emissions would be subject to, for example, the considerations outlined in clauses 1.4.3.7 and 1.7 of that Standard¹. In my view the outcome of such a process is by no means certain with regard to what may be deemed to be the sustainable development of the activity in this location in the long term. The 1997 decision records Mr William's position at that time that he didn't consider a limit of 35 flights per day would ever be problematic for his operation.

Appropriate controls

Ldn level

- 5.6 I agree that NZS6805:1992 provides useful guidance in that it may be inferred from Table 2 of that Standard that a noise level in the order of 55 dB Ldn is acceptable at residential locations without mitigation.
- 5.7 However the Standard also suggests this Ldn noise level be considered as an average over the busiest 3 month operating period of the airport. The operational data provided by QSL for the period November 2011 to October 2012 indicates that even if only the days when some (as opposed to zero) flights occurred are considered, the variation in noise level between busy and quiet days is over 10 dB. This is very different to a more typical airfield, and so the impact of averaging on the actual outcomes achieved

¹ For the assistance of the Court I have included as Attachment 6 a copy of the pages of NZS6805:1992 containing the Clauses referred to in this paragraph, and the Table referred to in paragraph 5.4.

for neighbours with any proposed control must be carefully considered.

- 5.8 Another feature of the QSL operation is that the busiest days are those where weather conditions are such that neighbours are likely to be using outdoor areas and have windows and doors open. The 'quiet' days coincide with rain or wind. So while consideration of average noise levels allows quiet days to offset noisy ones, the weather conditions are such that neighbours cannot appreciate the quieter days. I note that the more generic and modern NZS6802:2008 would not allow quiet days to be offset by noisy days in this manner (prescribed timeframes are described in clause 8.3.2 of that Standard, and are limited to daytime, evening and night-time on any day).
- 5.9 I also observe that the operational data provided by QSL indicates that the weather dependence of the activity will typically limit the 7 day average to 5 dB below the peak day Ldn, and during the busiest periods it will increase to within 1 or 2 dB for a period of 2 or 3 days. This means that the weather dependency of the activity will generally ensure the 7 day average noise levels are at least as far below the peak day noise levels as the 50 movements / 75 movements control Mr Day has proposed apart from on limited occasions.
- 5.10 I therefore remain unconvinced that the concept of averaging is appropriate or necessary to incorporate into a control for this activity.
- 5.11 Based on the above, and my discussions in paragraph 5.3 regarding the validity of the use of the Ldn in the context of small airfields, I have concluded that limiting noise levels to 55 dB Ldn *on any day*, along with a limit on the maximum number of flights *on any day* (corrected from the 75 proposed by Mr Day to reflect the actual number of flights which can currently be undertaken by the Cessna Supervan while the 55 dB Ldn limit is complied with as discussed

below) is a reasonable control for this activity with regard to effects on residential locations. This control retains some of the simplicity of the existing control which appears to work well in practice.

- 5.12 This proposed control falls somewhere between that initially proposed by Mr Day (where the 7 day average is limited to 50 dB Ldn but there is no control on peak day) and that now proposed by Mr Day (where the 7 day average is limited to 55 dB Ldn and the peak day is effectively limited to 56.8 dB Ldn).

Number of flights

- 5.13 With regard to the current proposal of Mr Day, the 7 day average of 50 flights proposed would produce a noise level of 60 dB Ldn and the 75 flight peak day would be a noise level of 61 dB Ldn at 39 Hackett Road.
- 5.14 Even based on the 2011 / 2012 operational data provided by QSL the 7 day average noise level already currently exceeds the 55 dBA Ldn limit proposed by Mr Day on 15 % of days over summer, and the operation exceeds the 55 dB Ldn peak day limit I have proposed on 35 % of days over the same period.
- 5.15 If QSL intends to keep operating in the manner I have observed then they would need to be restricted to 16 flights per day in order to comply with a 55 dB Ldn noise limit. Even if they put forward a credible mitigation proposal in relation to ground idle noise, they would still be limited to 35 flights per day due to the noise generated at Lot 14 The Preserve through the use of arrival path A.
- 5.16 Both of these issues would therefore need to be addressed in order for QSL to see any benefit from the modified controls in terms of increased flights. Based on the situation I observed on site, I believe this is an appropriate outcome.

- 5.17 I expect that any such mitigation will have a significant positive effect on the current situation for Jack's Point Rise / Hackett Road / Brett Lane residences, Jack's Point Golf Course, The Lodge and The Preserve, and should be implemented regardless of the outcome of this process, consistent with section 1.7.1 of NZS6805:1992 (particularly if the measures are as straight-forward as paragraph 6.5 of Mr Day's evidence suggests).
- 5.18 If both of these issues were addressed (ground idle and flight paths), further measurements would be required to confirm the noise levels arising from the modified operation, and therefore the number of flights allowable.

Mitigation

- 5.19 As above, mitigation is required with regard to both ground idle noise and arrival flight paths.

Ground idle noise

- 5.20 The evidence of Mr Fogden explains the characteristics of the Cessna Supervan 900 which lead to the high levels of ground idle noise I observed on site, and why shutting off the engine is not a practicable option for the operator. Mr Fogden also explains why the ground idle noise issue is not evident for the piston engine Cessnas (which can be shut down), or the Cresco aircraft (which produces lower levels of noise during ground idle) which QSL has used in the past.
- 5.21 Mr Day in paragraph 6.5 has suggested that idling noise is not likely to be an issue "in reality" and has gone on to suggest various mitigation options which could be considered "if idling noise is found to be significantly affecting measured noise levels in practice".

- 5.22 My measurements, which Mr Day attached to his evidence, provide definitive proof of idling noise significantly effecting measured noise levels. It is not clear to me what other “in practice” proof could be produced. With regard to the suggestion that this noise may not be an issue in reality - in my experience a noise source producing 60 to 70 dB sustained over a cumulative period of 4 hours during daytime at residential locations will be an issue.
- 5.23 Mr Day suggests three mitigation options – reducing the idling period, changing the orientation of the aircraft and construction of a barrier. I will discuss these in turn.

Reducing the idling period

- 5.24 It was my observation that the idling period was directly linked to the time taken to ready and load the aircraft.
- 5.25 The typical idling period I observed was 7 minutes. The briefest was 3 minutes. These observations fit well with paragraph 12 of the evidence of Mr Garland where he states “I am advised that it would not be possible even with great haste even with a doubling of aircraft numbers on the most exceptional and favourable day to exceed about 140 flights”. Working these numbers backwards based on the flight times I observed, the scenario described by Mr Garland involves a typical idling time of 3 minutes (I note that this scenario also seems to envisage operations extending longer than the 0800 to 2000 hours ‘daytime’ period which applies to other environmental noise in the District Plan, and am therefore supportive of Mr Dent’s proposition of a limitation on operating hours to ensure that this is not the case).
- 5.26 Even if that were achievable, such a reduction would only reduce average ground idle noise levels such that 35 flights could be accommodated again (rather than the reduced number of 16 which is currently acceptable). To achieve any increase in numbers above 35 the average idling time would have to be reduced to less

than 2 minutes. I consider that QSL would need to provide evidence demonstrating that this was realistic because based on the information currently available, this does not seem to be the case.

Aircraft orientation

- 5.27 I accept that the Cessna Supervan 900 is a directional sound source, and observed some spatial variations on site which would confirm this. The evidence of Mr Fogden indicates that the highest noise levels are experienced within 30 degrees of the engine centreline, forward of the aircraft. I note that the Hackett Road properties are currently already outside this higher noise area.
- 5.28 During my three days of observation the aircraft was always loaded at the eastern end of the runway, while facing westwards down the runway in the direction of eventual take-off. Mr Fogden describes how restrictions on manoeuvring the aircraft when fully laden make this the only practical option.

Acoustic barrier

- 5.29 The evidence of Mr Garland is explicit in regard to the fact that no physical development is associated with the current proposal. As with the reorientation of the aircraft, I expect that the introduction of such measures may have a flow-on effect to other aspects of the current application.
- 5.30 Nevertheless, I have no problem accepting that acoustic barriers can provide meaningful noise reductions. However in this case I note the considerable elevation difference between the source and receiver described in Mr Dent's evidence and the operational matters outlined in the evidence of Mr Fogden which mean the barrier could not be located in close proximity to the noise source.

- 5.31 On balance this means the barrier would need to be high (5 to 10 metres), and would need to extend a considerable length as elevated noise levels are currently experienced several hundred metres west along Jack's Point Rise.
- 5.32 From an acoustic point of view the design of such a barrier would be relatively simple to verify using a computational acoustic modelling software package and I would expect to see the outputs of such an exercise if this mitigation option is to be formally introduced as part of the proposal.

Flight paths

- 5.33 Even if the ground idle noise were successfully mitigated such that 35 flights could again be accommodated, as my evidence above demonstrates, more than 35 flights would only be possible in terms of the noise level generated at Lot 14 The Preserve if approach path A is no longer used.
- 5.34 Any such proposal (unless approach path C is to be used exclusively) will however increase noise effects for The Lodge.
- 5.35 Arrival path C is clearly the best possible outcome for both The Lodge and The Preserve, however aircraft then travel directly over the Jardine Homestead (Mr Day has included this location in his draft condition, and I understand no affected persons approval has been obtained from this party). No information has been provided regarding the viability of the exclusive use of this approach flight path, or what noise levels would be generated at the Jardine Homestead.
- 5.36 I conclude that a clear proposal is required from QSL regarding the proposed arrival flight path, so the effects of the proposal can be properly considered.

Effects on the golf course

- 5.37 The above discussions relate only to effects on residential locations. In paragraph 4.20 I discussed the existing situation on the golf course.
- 5.38 Effects on the golf course of an increase in QSL activity (if mitigation were to be implemented such that this could be achieved, as discussed above) are difficult to quantify using traditional acoustic measures. Unlike a residential situation those exposed to the noise are only in the area for a limited period of time (so parameters such as the Ldn level are not particularly relevant); however they are in the area for the purpose of undertaking a specific outdoor activity which involves periods of concentration, and they may have chosen to undertake this activity in this area due to a perception that the location embodies a certain set of values, and aircraft noise in that context is surprising and disruptive. This differs from a residential situation where a variety of activities are undertaken both indoors and out, and the nature of the surrounding environment is known and understood.
- 5.39 What is clear is that the situation on the golf course would change with the advent of more QSL flights, as follows:
- Currently if there were 35 flights in a day the average gap between aircraft over flights is 8 minutes.
 - If 75 flights took place, the gaps between over flying aircraft would be reduced to 4 minutes.

Based on the time taken to play holes 2 and 5 of the golf course, this change considerably increases the likelihood that a player will experience multiple aircraft flyovers during their round.

5.40 I have provided an example of the resulting typical change in sound levels over time in figure B of Attachment 3, which can be compared with the situation I observed on site in figure A of Attachment 3.

5.41 This increase in noise exposure will have some adverse effect. I have provided this information to Mr Tataurangi and Mr Tod to supplement their own knowledge of the noise environment on the golf course, and to enable them to understand what the proposed increased frequency of flights might mean.

6.0 CONCLUSIONS

6.1 I have considered the noise effects of the current application in relation to the QSL operation.

6.2 There have been significant changes to both the sound source and receiving environment compared to the situation considered during the 1997 consent process. QSL currently operates under that consent, which restricts the operation to 35 flights on any day, and two aircraft. The situation is now worse with regard to noise levels received at residential dwellings using the Supervan 900 than it would have been at the time consent was granted at which time a different type of aircraft was used.

6.3 I agree in general terms that a noise limit of 55 dB Ldn is appropriate at residential locations.

6.4 My site measurements indicate that the current QSL operation generates noise levels of up to 58 dB Ldn at residential locations.

6.5 Significant mitigation with regard to both ground idle noise and aircraft flight paths is required if the QSL operation is to comply with a limit of 55 dB Ldn. Any increases in activity would require additional mitigation.

aircraft flight paths is required if the QSL operation is to comply with a limit of 55 dB Ldn. Any increases in activity would require additional mitigation.

- 6.6 As I consider no credible mitigation proposal has been put forward by QSL, the effect of adopting the proposed 55 dB Ldn limit would be to reduce the permissible number of flights to 16 on any day.
- 6.7 Any increase in operations will also have an increased effect on the users of the Jack's Point Golf Course which is not well captured using traditional acoustics methods.

Jeremy William Trevathan

14 March 2013

BEFORE THE ENVIRONMENT COURT

ENV-2012-CHC-116

IN THE MATTER

of the Resource Management
Act 1991

AND

IN THE MATTER OF

a direct referral by **SKYDIVE
QUEENSTOWN LIMITED** for a
resource consent application to
operate a commercial
parachute and associated
transport operation at
Remarkables Station, State
Highway 6, Queenstown

REBUTTAL EVIDENCE OF CHRISTOPHER WILLIAM DAY

1.0 QUALIFICATIONS AND EXPERIENCE

- 1.1 My professional qualifications and experience are detailed in my Primary Evidence, however, I would like to add to this my experience as a golfer as I will later discuss the potential effects of noise on the golf course.
- 1.2 I am a recreational golfer, currently on a handicap of 9. I am a member of the Royal Auckland Golf Club, playing golf once, sometimes twice a week. Last year I played 18 golf courses in Ireland and Scotland, including the Old Course at St Andrews.
- 1.3 I have played 78 of New Zealand's 390 golf courses including the top 'resort' golf courses at Kauri Cliffs, Cape Kidnappers, Wairaki, Kinloch, Terrace Downs, Clearwater, The Hills and Jacks Point. I have played Jacks Point four times including two occasions where the parachute aircraft were operating.
- 1.4 This evidence discusses the evidence of Mr Philip Tautarangi and the primary evidence and rebuttal evidence of Dr Jeremy Trevathan.
- 1.5 In this evidence I use two acoustical parameter to describe noise levels; L_{AE} is a measure of the overall 'noise energy' from a single event, L_{dn} is a measure of overall noise exposure and combines the L_{AE} with the number of events to give the average noise level for the day – it is the measure used in New Zealand for community response to aircraft noise.

2.0 EVIDENCE OF MR TAUTARANGI

- 2.1 In paragraph 20, Mr Tautarangi quotes the number of aircraft movements over the golf course on the occasional worst case day of 75 flights provided to him by Dr Trevathan. I do not disagree with these numbers overall, except that in my opinion the arrivals are much less of an issue than the departures. In particular, when the noise abatement Track is flown the arrivals have little impact on the golf course. On this basis my analysis concludes that golfers would typically experience one aircraft departure overhead on each of holes 2, 3 and 5 – and thus a total of three aircraft departures per round.
- 2.2 The new Supervan aircraft is travelling at 200 kph while climbing and it would thus take 7 seconds to traverse the 362 metre long 2nd hole. Due to the speed of the aircraft, each noise event lasts significantly, for approximately 10 seconds.
- 2.3 I agree with Mr Tautarangi that during this 10 second event, the aircraft is a significant visual and aural experience – most golfers stop, watch and wait for the event to pass.

- 2.4 If this event happens once on each of holes 2, 3 and 5 then the total waiting time will be 30 seconds per round. Even if the arrivals also fly over the golf course, the total wait time would be one minute. In my opinion this extension to a four and half hour round of golf is insignificant.
- 2.5 Mr Tautarangi's overall conclusion is contained in his paragraph 27, where he states "*any increase of flight activity by Skydivewill, no doubt, impact the genuine world class golf experience that is currently enjoyed there.*" Clearly this broad statement is not correct – for example, an increase of one flight per day of an aircraft that is 10 dB quieter than previous aircraft would reduce the impact on the golf course.
- 2.6 In my review of Dr Trevathan's evidence I will show that both the number of holes affected and the noise levels will be reduced by the proposed activity compared with the original 35 piston aircraft per day.
- 2.7 I would now like to discuss in general whether aircraft noise is a significant impact on the golfing experience. It is interesting to note that there are a number of golf courses close to airports around New Zealand. Nelson Airport and Whakatane Airport have a golf course at the end of the runway and Invercargill has golf courses at both ends of the runway. Queenstown Airport has a golf course immediately bedside the runway and Wellington Airport has a golf course 400m side on to the runway. Christchurch Airport has three golf courses in close proximity, as shown in the figure below.



Figure 1 - Christchurch International Airport

- 2.8 Harewood Golf Course is approximately 300 metres from the end of Runway 11 and would experience extremely high noise levels from jet aircraft using this runway. Harewood Golf Course is not the same quality of course as Jack's Point, however the Clearwater Golf Course to the north of the airport very much is. Clearwater has been the venue for the New Zealand Open for the last two years.
- 2.9 Aircraft on arrival to Christchurch are overhead Clearwater holes 3, 4 and 5 at an altitude of approximately 200 metres. Noise levels experienced on these holes from individual events would be in the order of 100 dB L_{AE} from a Boeing 747 and approximately 92 dB L_{AE} from a Boeing 737-300. The B737 noise level is the same as the noise level of the Supervan measured by Dr Trevathan on the 2nd hole at Jacks Point - 92 dB L_{AE}.
- 2.10 Clearly the administrators and professional golfers in New Zealand do not think these noise levels are a significant adverse effect by choosing this golf course over many other high quality golf courses available in New Zealand for the New Zealand Open.
- 2.11 To reinforce this finding, I attach a google earth map of Sydney Airport which shows a number of golf courses to the east of runway 25/07 (the east/west runway).

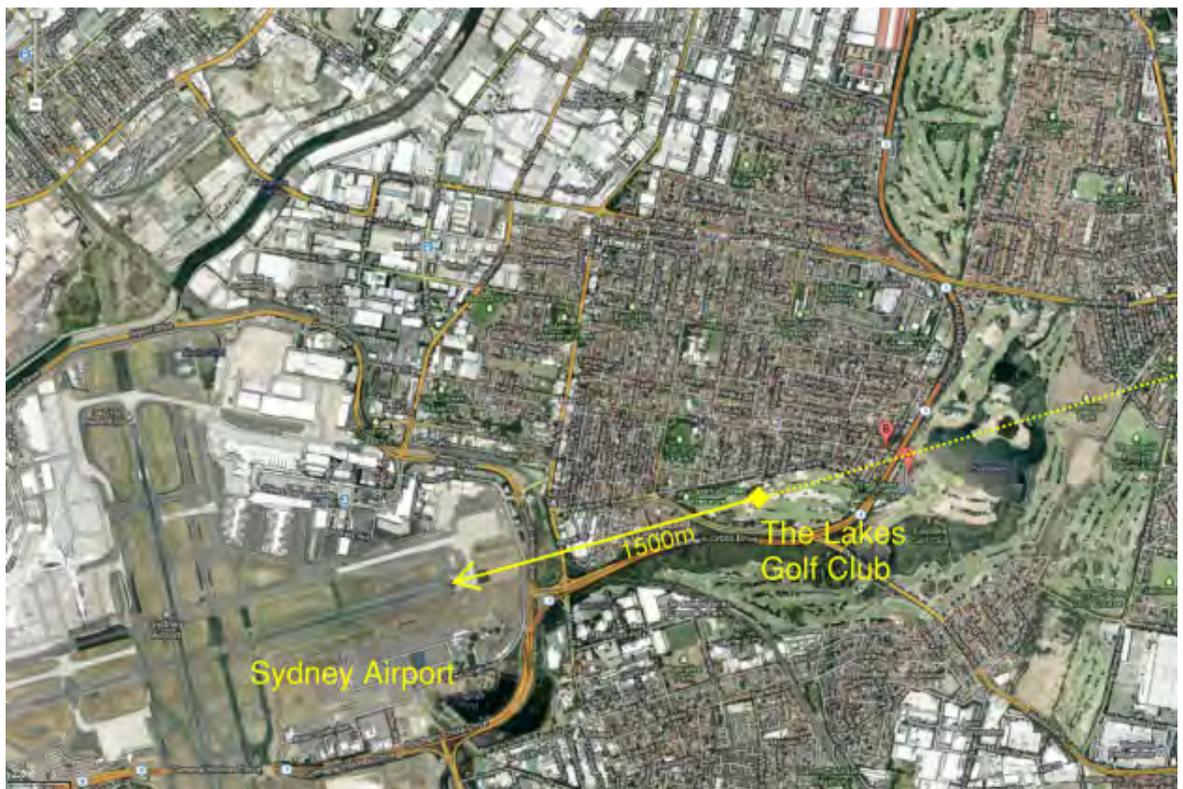


Figure 2 - Sydney Airport

- 2.12 In particular the Lakes Golf Club, one of Australia's premier golf courses, is located approximately 1500 metres from the east end of runway 25/07. Over most of this golf course, golfers would experience noise levels in the order of 110 dB L_{AE} from a Boeing 747 and 100 dB L_{AE} from a Boeing 737-300 on approach. These noise levels are 10 to 20 dB

higher than that experienced at Jack's Point. As a golf follower, I have been aware of the aircraft noise at The Lakes from the television coverage. There is Youtube video available of Tiger Woods chipping at the Lakes Golf Course during the Australian Open with high levels of aircraft noise during his shot.

- 2.13 This 'cross runway' is not always in use of course but the records show that for the 2012 Australian Open, this runway was in operation for two of the four days of the tournament.

3.0 EVIDENCE OF DR TREVATHAN

Outdoor Amenity - Golf Course

- 3.1 In Section 3.0 Effects on Outdoor Amenity, Dr Trevathan discusses the effects of noise on the golf course. Dr Trevathan comes to the conclusion in paragraph 3.10 and 3.11 that *"on balance....a peak day limit of 50 flights may be appropriate"* but he does not support an increase to 75 flights.
- 3.2 In my opinion the difference between 75 flights and 50 flights per day would not be a noticeable effect on golfers. At worst, each golfer might experience four departures for their round rather than three while playing holes 2, 3 and 5. As discussed previously, it does not appear that this type of event significantly affects professional and amateur golfers using high quality golf courses such as The Lakes and Clearwater.
- 3.3 Overall, it is my opinion that the proposed activity (50/75 Supervan flights) will have a significantly lower impact on the golf course 35 flights of the Cessna piston aircraft for the following reasons;
- Firstly, the noise level of the Supervan aircraft in flight is significantly lower than the Cessna piston (more than 10dB). Dr Trevathan measured the Supervan at 92 dB L_{AE} on the 2nd Hole and I previously measured the Cessna piston at 104 dB L_{AE} beside the 2nd tee.
 - Secondly, the Supervan has a much higher climb rate than the piston aircraft and gets away from the golf course more quickly resulting in shorter duration events over the golf course(1500ft per min vs 600ft per min).
 - Thirdly, due to the lower climb rate of the Cessna piston, these aircraft when fully laden, could not climb directly over Jack's Hill and had to fly north over Jack's Point as shown in Figure 3 below. This track over flies holes 1, 17 and 18 and then back along the ridge over holes 13, 14, 15, 16, 4 and 5.

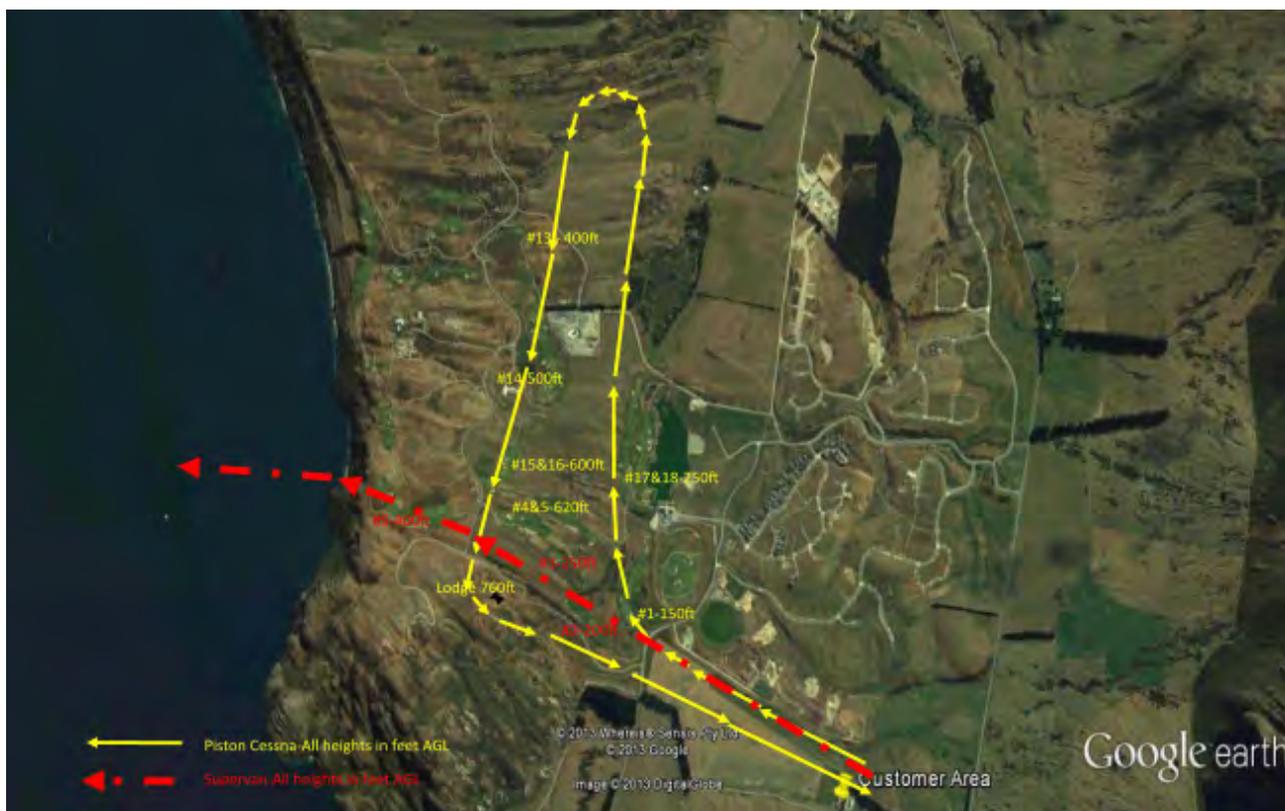


Figure 3 - Flight Tracks over Jack's Point
(Golf Hole # and aircraft height above ground)

- The proposed activity thus affects three golf holes for a total duration of 30 seconds and the previous Cessna piston activity affected nine holes for a total duration of 130 seconds.

3.4 In summary, the proposed activity creates noise over the golf course that is quieter and shorter duration than the previous piston aircraft – less golfers will be affected. Higher levels of aircraft noise are experienced at the Australian Open Lakes Golf Course and these are regarded as reasonable by professional golfers and the club members.

Flight Tracks

3.5 In paragraphs 4.4 to 4.12 Dr Trevathan discusses the various flight tracks used by SQL. My understanding aligns with Dr Trevathan in that two arrival tracks are used (the straight approach from the west and the curved approach from the south) and two departure tracks have been used (the straight departure to the west and the 'looped' departure to the north) as shown in Figure 3 above.

3.6 The looped departure was previously flown by heavily laden Cessna piston aircraft. I should clarify that in my primary evidence, the noise level shown in Table 1 for the piston aircraft was for lightly laden piston aircraft using the straight departure. The noise level at The

Lodge would be lower for the looped departure (approximately 90 to 95 dB L_{AE} and 56 dB L_{dn} for 35 flights per day).

Averaging

- 3.7 In section 2.0 of his rebuttal evidence, Dr Trevathan discusses the issue of 7-day averaging as contained in the proposed conditions of consent. Dr Trevathan rejects the averaging concept on the basis that it allows individual high noise level days (paragraph 2.2), even though the proposed conditions limit the maximum on any individual day to 2 dB higher than the average.
- 3.8 Dr Trevathan rejects the three months averaging used in the NZ Standard on Airport Noise, NZS 6805 and the seven-day averaging used in the Helicopter Standard NZS 6807 on the basis that this airfield is “*very different*” to other airfields (primary evidence para 5.7, rebuttal evidence para 2.3). Dr Trevathan claims the difference is that this airfield has a number of non-flying days due to weather and “*even if there are only one or two non-flying days in a week, the seven-day average will be skewed..... allowing high noise levels on the remaining days.*”
- 3.9 In my experience of many other New Zealand airfields, this ‘on-off’ nature is not uncommon and 3 month averaging is always used. For example, Christchurch Airport has a cross-wind runway that is used under north-westerly conditions. These conditions occur infrequently but may happen for several days in a row. The noise limit around this cross-wind runway is based on three month averaging and thus allows much higher noise levels on particular days but this is balanced by relief from noise on all the other days.
- 3.10 Dr Trevathan provides an example of his concerns on this averaging issue in paragraph 2.5. He is concerned that within a seven day period, by having a one day layoff due to weather, for the other six days the airfield could operate at 56 dB L_{dn} . He regards this as an unacceptable affect and proposes a single day limit of 55 dB. Dr Trevathan’s calculation is correct and his 56 dB has been rounded up from the calculated value of 55.7 dB (normal practice). However, in my opinion, a change in noise exposure of 0.7 dB is not perceptible, rather than an unacceptable effect.
- 3.11 It is widely accepted, that a change in noise level of 4 – 5 dB is noticeable and a change of 3 dB is only just perceptible and changes of 1 to 2 dB are not perceptible. In my opinion the example provided by Dr Trevathan of six days at 55.7 dB L_{dn} with one day of relief (no noise) would probably be preferable to most residents compared with 7 days of 55 dB L_{dn} .

Idling Noise

- 3.12 During Dr Trevathan’s original site noise measurements he discovered a position in Hackett Road where the noise from the on-ground idling of the Supervan contributes significantly to the overall noise measurement of the flight. Subsequent to this, Marshall Day Acoustics

carried out additional noise measurements at this site with the Supervan orientated in different directions at the idling location. A 'noise abatement idling procedure' was developed and it was agreed during caucusing that using this procedure, 50 flights per day could take place and comply with the 55 dB L_{dn} noise limit.

- 3.13 Subsequently, Dr Trevathan has stated in his rebuttal evidence (paragraph 4.4) that his original observations showed that the loading time for the Supervan was approximately three minutes and that on that basis he is now of the opinion that the 50 flights a day cannot comply with 55 dB L_{dn} limit. It is disappointing that this issue was not raised during caucusing.
- 3.14 In April this year I asked the chief pilot of SQL to record the loading time for a typical day's activity using the noise abatement idling procedure. On the 26 April there were 14 flights and the average loading was 1 minute 20 seconds. Using this average time and allowing for seven day averaging of different propagation conditions, I am confident that the proposed activity (50 flights per day) can comply with the 55 L_{dn} noise limit.
- 3.15 To give the Court further confidence, if the noise level was found to exceed the limit at any stage, a barrier fence could be built relatively easily to provide a further 5 to 8 dB of mitigation. A photograph is shown below which was taken from the idling position on the runway looking towards Hackett Road which shows a four metre pole with a three metre high white marker on it.



Figure 4 - Hackett Rd residential from the 'Idling Position

- 3.16 This photo shows that the acoustical 'line-of-sight' can be broken relatively easily to achieve the required noise mitigation if this should become necessary.
- 3.17 In any event, SQL have to comply with both conditions of consent – the noise limit of 55/57 dB L_{dn} and the number of flights per day (50/75). Dr Trevathan is mistaken in the opinion that these are in conflict – both of these conditions have to be complied with and whichever becomes the more stringent will ensure that any adverse effects are controlled.
- 3.18 In my understanding, the Resource Management Act adopts an effects based approach, and that noise effects can be controlled by setting appropriate noise limit. In this case 55 dB L_{dn} is agreed by all experts to be an appropriate limit for the surrounding residential accommodation that is going to be built close to this airfield.
- 3.19 The Court can be comfortable that the effects will be controlled as the operator has a number of methods available to ensure its' operations will comply with the conditions of consent.

4.0 SUMMARY

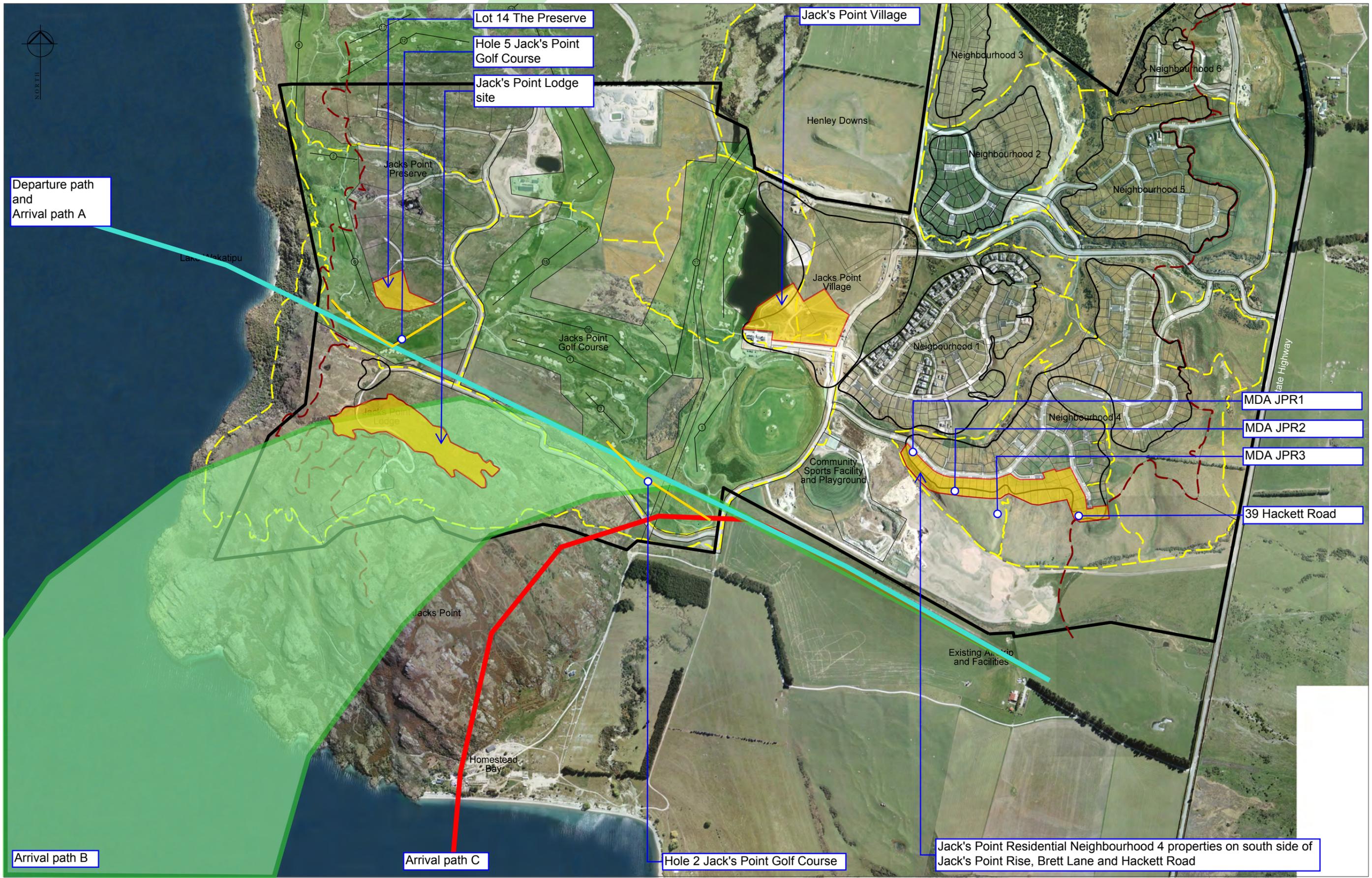
- 4.1 Expert conferencing has meant that most noise issues have been agreed. Dr Chiles and I are generally in agreement on most issues and the conditions of consent.
- 4.2 Dr Trevathan is generally in agreement on most issues except;
- (i) **Averaging;** He disagrees with seven-day averaging because it would allow 0.7 dB extra on six days if peace and quiet was provided on the seventh day
 - (ii) **Golf;** He is of the opinion that 50 flights per day would provide adequate amenity on the golf course but 75 flights per day would not
 - (iii) **Idling;** In his opinion idling would not be able to comply with 55 dB L_{dn} at one location within Jacks Point (Hackett Road).
- 4.3 I disagree with Dr Trevathan on these issues;
- (i) **Averaging;** A 1dB or 2 dB difference in noise levels is not discernible and providing peace and quiet on the one or two other days is a more than adequate trade-off
 - (ii) **Golf;** In my opinion, aircraft noise is experienced on a number of high quality golf courses and the impact of the Supervan aircraft will be less than the Cessna piston aircraft operating when the golf course was built
 - (iii) **Idling;** The operator has a number of mitigation options available to ensure the activity complies with the noise conditions (orientation and barriers). Noise measurements show that compliance is achievable

4.4 To conclude;

- Under the proposed conditions, 50 Supervan per day will be quieter than the potential noise with 35 piston aircraft per day, over most of the Jack's Point development, except for future houses on Hackett Road where the noise level will be similar to the piston aircraft.
- Individually, the Supervan aircraft in flight, is more than 10dB quieter than the originally used Cessna piston aircraft
- The Supervan aircraft climbs more quickly than the Cessna piston aircraft (1500 feet per minute versus 600 feet per minute)
- The departure track for the Supervan aircraft flies over a much smaller area of the Jack's Point development than the Cessna piston tracks (3 golf holes for 30 seconds versus 9 holes for 130 seconds).
- The proposed consent conditions give Jack's Point the protection of a noise limit – the existing conditions do not.

Christopher W Day
April 2013

Attachment 1 - Site plan



DATA:
 VERIFIED
 NON VERIFIED DATA

Contractors to verify all dimensions on site prior to commencing work. Figure dimensions to be taken in preference to scaled dimensions. The copyright of this drawing remains with Darby Partners Limited.

SCALE: 1:10,00 (A3)

PLAN STATUS:
DRAFT

NOTES/CONSULTANTS:

REVISION:

NO	DESCRIPTION	DATE	BY
1	First Issue	21.08.12	ZC

DATE: 21.08.12
 DESIGNED/DRAWN: ZC
 APPROVED: DT

FILE: JP_2011/CAD/CONSENTS/INZONE/JP_RC-100 (Noise Measure Locations).dgn

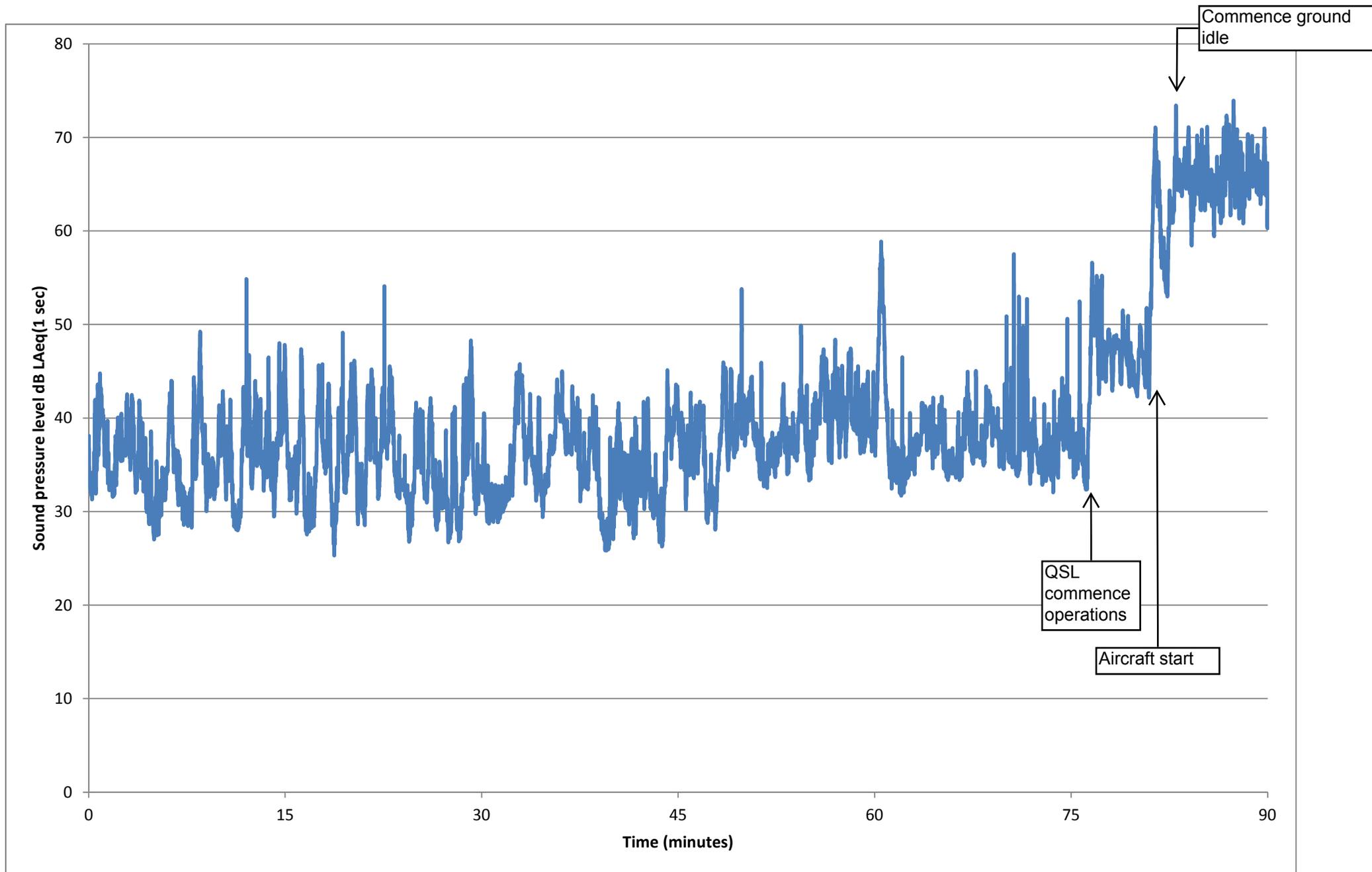
DRAWING NO:
RC-100

JACKS POINT NOISE MEASURE LOCATIONS

Level 1, Steamer Wharf, Lower Beach Street
 PO Box 1164, Queenstown 9348
 Tel +64 3 450 2200 Fax +64 3 441 1451
 info@darbypartners.co.nz
 www.darbypartners.co.nz

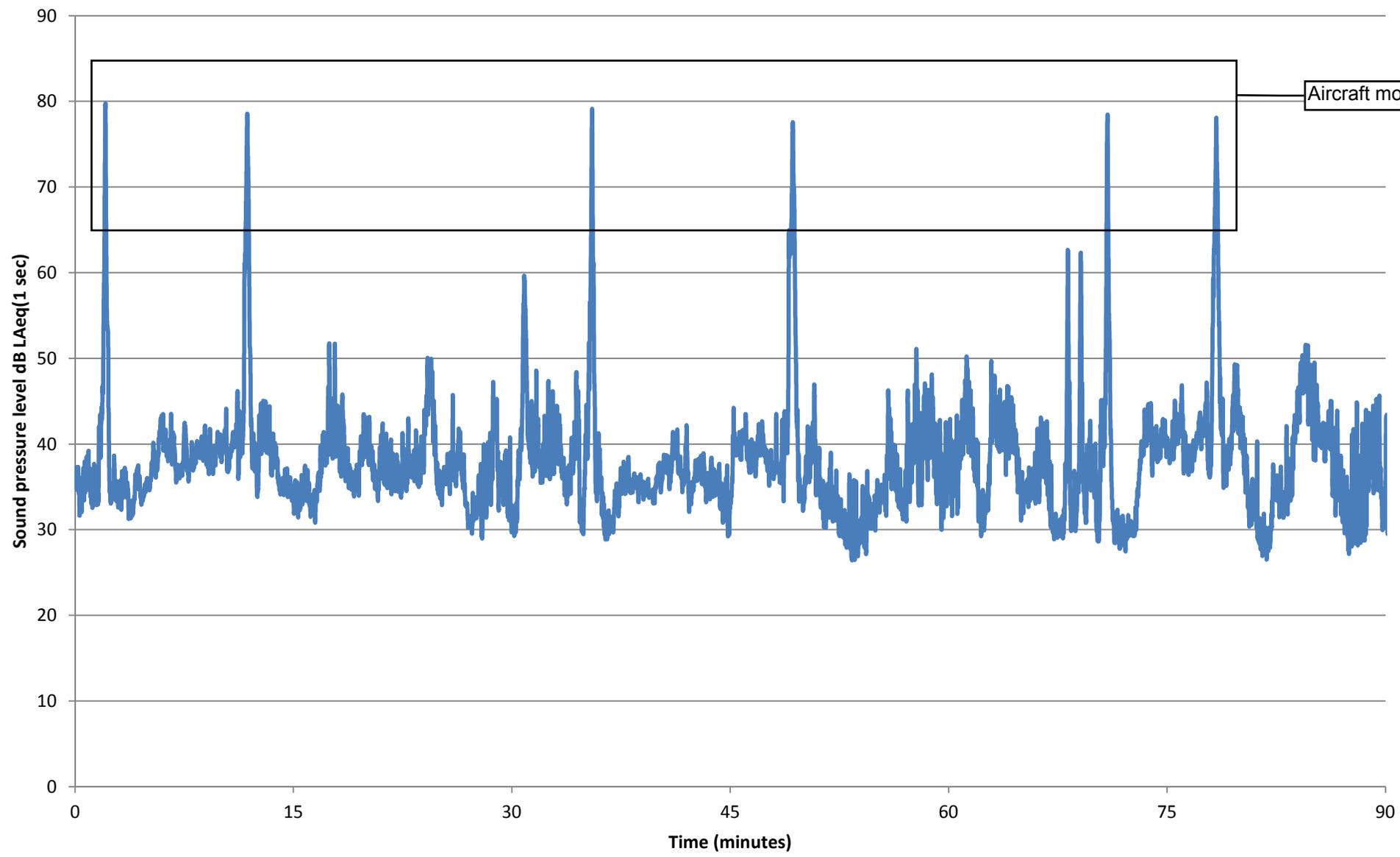
DARBY PARTNERS LIMITED

Attachment 2 - Sound levels at 39 Hackett Road

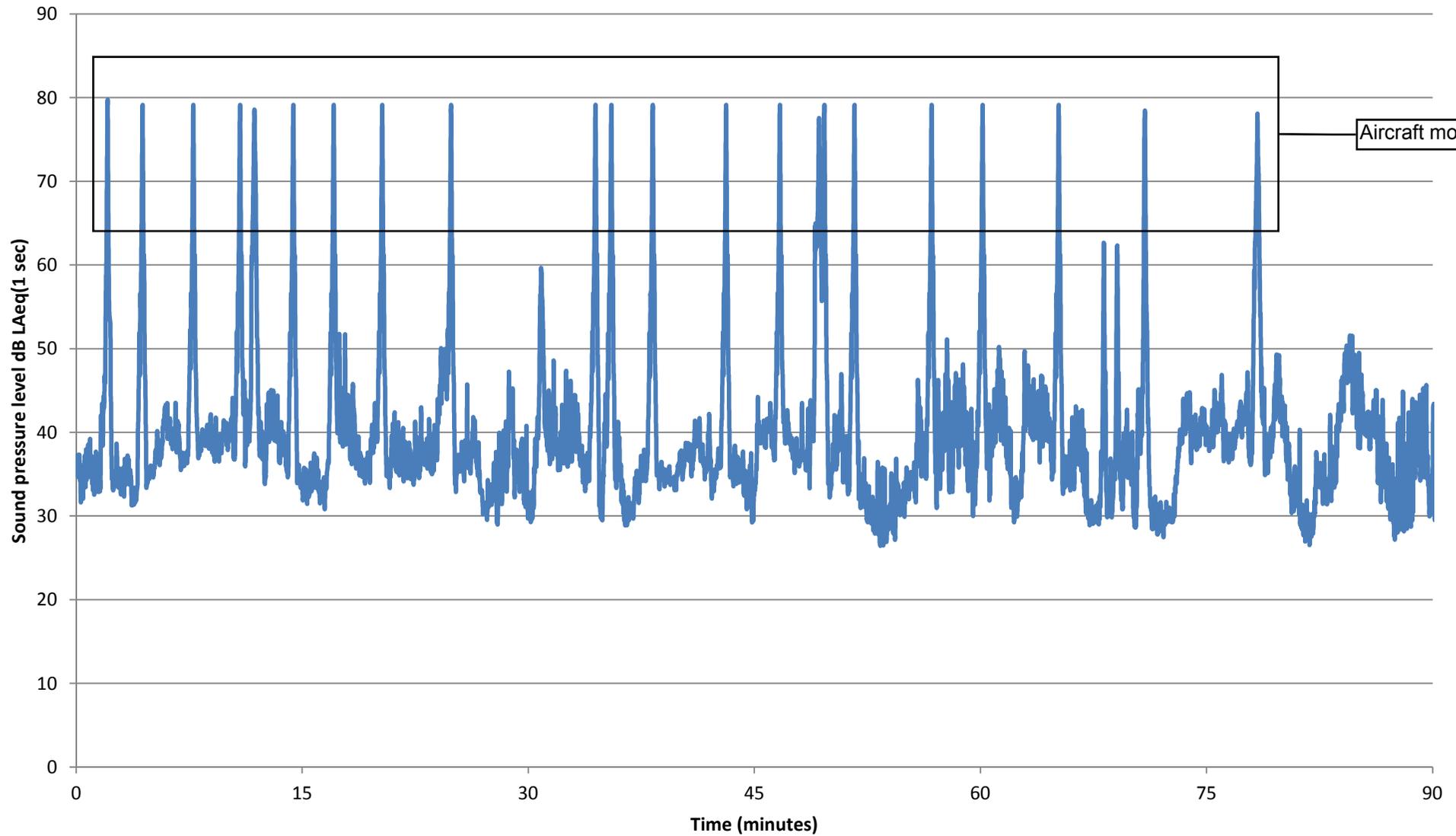


Attachment 3 - Sound levels at Jack's Point Golf Course Hole 2

A - Measured noise levels Hole 2 Jack's Point Golf Course 28/09/12



B - Approximation of noise levels Hole 2 Jack's Point Golf Course for 75 flight peak day



Attachment 4 - AES Memo dated 27 February 2013

Memorandum

To:	Richard Brabant, JPROA						
CC:	Sean Dent, Southern Planning Vanessa Robb, Anderson Lloyd						
From:	Jeremy Trevathan, AES						
File Reference:	A06512 – 03 – D1						
Date:	Wednesday, 27 February 2013						
Project:	Queenstown Skydive – Noise monitoring 29 January 2013						
Meeting	<input type="checkbox"/>	Telephone	<input type="checkbox"/>	Memorandum	<input checked="" type="checkbox"/>	File Note	<input type="checkbox"/>

Dear Richard,

Re: Skydive Queenstown Ltd - Noise monitoring 29 January 2013

As you are aware, we completed further noise monitoring and observation in the vicinity of the Skydive Queenstown operation on Tuesday 29 January 2013. I was accompanied for the duration of the observation period by Dr Stephen Chiles who has been engaged by the Queenstown Lakes District Council in relation to this matter. Skydive Queenstown Ltd were not given prior notice of the proposed measurements.

The following matters influence the interpretation of the latest measurement results, and the relevance of some matters discussed in our previous report:

- It has been confirmed that Skydive Queenstown Ltd now operate two Cessna Supervan 900 aircraft. The noisier Cresco 750 aircraft discussed in our previous memo has reportedly been sold.
- The evidence of Mr Chris Day (undated) has modified the proposal in the following ways:
 - Ground idle noise is now proposed to be included in assessing the Ldn levels arising from the operation.
 - The operation is to be limited to 55 dB Ldn at all Jacks Point residential locations, *and* at The Lodge site.
 - Mr Day has not contested that Lot 14 The Preserve is a residential location requiring protection.
 - A dual control is now proposed with both the maximum Ldn noise level and number of flights limited, which could be taken as an acceptance that for this type of activity an Ldn level as per NZS6805:1992 is not the only relevant parameter when considering noise effects.

- A 7-day average limit, along with a single day maximum limit is now proposed, presumably in response to the matters raised in paragraph 6.6 of my original report.

Although presented with little or no discussion or reasoning in his evidence, these are meaningful modifications to the proposal, and go some way to addressing the concerns expressed in our original report.

The methodology used and monitoring locations relevant to the January 2013 measurements are as described in our previous report A06512 – 02 – D1 dated 11 October 2012. Please find our results, analysis and conclusions below.

1.0 Metrological conditions

- 1.1 The weather on this occasion was warm with high cloud while the aircraft were operating. However early in morning low cloud prevented the aircraft operating, and temperatures were cooler.
- 1.2 When the aircraft commenced operations just after 0900 hours there were neutral / slightly assisting wind conditions (0 to 1 m/s). From around 1030 hours upwind conditions began to build to 3 to 5 m/s.
- 1.3 There was therefore a short window at the commencement of the monitoring period conditions were suitable assessing compliance based on NZS6802:2008 (however as I will discuss later, NZS6805:1992 is less explicit regarding weather conditions). Later in the day wind conditions resembled those prevailing during our initial measurements, and would have been expected to have the effect of inhibiting the propagation of sound from the airfield towards Jacks Point residential locations.

2.0 Airfield operation

- 2.1 A Cessna Supavan 900 (NZO) was operating alone for the duration of the monitoring period. A second Cessna Supavan 900 (KPH) was sitting outside the hanger. As outlined above, we now understand that these are the two operational aircraft and that the Cresco 750 mentioned in our previous report is no longer used.
- 2.2 All departures used the same track as shown in attachment 2 of our report dated 11 October 2012. However arrivals generally used a more 'casual' curved flight path making a right-hand turn over The Lodge site, as opposed to using a reciprocal of the straight departure track (as was the situation observed in September 2012). We assume these are the "straight" and "curved" arrivals flight paths referred to in the MDA reports.
- 2.3 The average time between arrival and departure in this case was 9 minutes, compared to 15 minutes in September 2012. However while this average 'turnaround time' was lower, the minimum turnaround time achieved remained in the order of 6 to 7 minutes. Ground idle noise was present for an average of 7 minutes between arrival and departure. In addition to this, refuelling which typically took in the order of 20 minutes to complete, occurred twice during a 6 hour period. Noise levels during this period were negligible.
- 2.4 The average time between departure and arrival was 22 minutes (compared to 21 minutes in September 2012). The maximum and minimum flight times were almost identical to the September 2012 observations.
- 2.5 To calculate the *maximum* number of flights which could ever be accomplished in a given time window, it would seem appropriate to use a 7 minutes arrival to departure turnaround (although from our observations it seems unlikely that they could achieve an average turnaround this low) and a 21 minutes departure to arrival time (this period appears to be simply related to how long it takes the aircraft to reach altitude, and

cannot really be varied). 28 minutes per aircraft per flight therefore seems the most that could realistically be achieved.

- 2.6 It therefore remains unclear as to how even 50 flights could be achieved with only two planes operating. This would require 12 hours of constant flying by both planes, and the quickest observed on-ground turnaround achieved each time.

3.0 Other noise sources in the area

- 3.1 I note the evidence of Mr Day repeats his observation that aircraft noise at 55 dB Ldn will “fit reasonably within the general ambient noise in the area”.
- 3.2 While noise when the aircraft was at altitude was not as constantly audible in the village during this site visit as it was in September 2013 (presumably due to different metrological conditions and/or flight paths at altitude) I remain of the view that this is not a reasonable summary of the situation.

4.0 Measurement and analysis methodology

- 4.1 Noise levels were measured at locations [x] and [y] identified in our previous report. Ten flights were measured in each location.
- 4.2 The results have again been processed and converted into the dB Ldn level which would have arisen if 35 flights were completed by the two Cessna Supervan 900 aircraft. However, the results are somewhat complicated as it has now been observed that:
- Wind conditions significantly influence the noise levels received at location [y] during ground idle. While the more generic NZS6802:2008 requires assessment of compliance to be carried out under slight positive propagation conditions, NZS6805:1992 assumes measurements will be carried out in the long term and so makes no mention of wind effects. In this case the controls proposed (a 7 day average and a 1 day maximum level of activity) depart considerably from the 3 month average discussed in NZS6805:1992, and so it appears reasonable to conclude that compliance should be achieved during, at least, neutral wind conditions.
 - Two flight paths were now observed in the vicinity of location [x], as discussed above. The ‘straight’ path was in use during the September 2012 measurements and took both the arrivals and departure close to Lot 14 The Preserve. During the January 2013 measurements only departures used this track, and the arrivals now used a ‘curved’ track over The Lodge site.

As discussed below we have considered noise arising in all of these scenarios.

5.0 Noise received at southern boundary of 39 Hackett Road (Location [y])

- 5.1 Noise in this location is dominated by ground idle. Levels were seen to be highly dependent on wind conditions. As above, NZS6802:2008 is clear in that slightly assisting wind conditions are appropriate for assessing compliance. However NZS6805:1992 anticipates that noise monitoring will be completed over a long term, and therefore there is an inherent assumption that a range of wind conditions will contribute to the average.
- 5.2 If provided with metrological data for the area it would be possible to establish what ‘average’ wind conditions are in this case. Alternatively, it could be argued that neutral / slight assisting wind conditions are a reasonable scenario in this case as the averaging and assessment times have been shorted to 7 days and 1 day (compared to 3 months in NZS6805:1992).

- 5.3 During neutral / slightly assisting wind conditions and assuming an average ground idle duration of 7 minutes 58 dB Ldn would be generated at location [y] (for comparison, this level is reduced to 50 dB Ldn if a wind blows from receiver to source).
- 5.4 This noise level could be reduced to comply with a 55 dB Ldn limit by:
- Reducing flight numbers to 16
 - Reducing average ground idling duration to 3 minutes
 - Reducing ground idling noise levels by 3 dB
- 5.5 If a situation involving 50 flights is to be considered (as now proposed in the evidence of Mr Day) the following options would be available to ensure compliance with the proposed 55 dB Ldn limit:
- Reducing average ground idling noise duration to 1.5 minutes
 - Reducing ground idling noise levels by 7 dB
- 5.6 From our observation of the operation and the input of Mr Fogden, we do not think that reducing the idling time to the degree outlined above is a practicable option. The idling time seems to be related to how quickly the aircraft can be reloaded, and the minimum time observed during our three days on site was 3 minutes. To maintain an average of 3 or 1.5 minutes therefore seems unrealistic.
- 5.7 Therefore if this consent is granted and the Applicant continues to operate in the same manner as currently, they will be required to reduce the number of daily flights (average over a 7 day period) to 16 to comply with the new 55 dB Ldn limit. If they continue operating in the manner we observed, the 55 dB Ldn limit will be breached.
- 5.8 I expect that this will be an unacceptable outcome for the Applicant, and so they will need to investigate measures for reducing ground idle noise levels by 3 dB (35 flights) or 7 dB (50 flights). This seems to be a reasonable outcome, as the associated reduction in noise effects on the Hackett Road properties will be significant compared to the existing situation.
- 5.9 The option of a barrier was identified by Dr Chiles on site, and is mentioned in the evidence of Mr Day. The design of an acoustic barrier located on the Applicants site achieving a 7 dB reduction for elevated receivers at the distance considered here may not be a straight forward task, but could be achievable. The higher-frequency character of the sound in this case may assist. Computational modelling would be required to confirm the effectiveness of any barrier proposed given the complex topography in the area,
- 5.10 The option of re-orientation the aircraft during ground idle has also been put forward by Mr Day. Much more information would be required to provide any certainty that this was a practicable option, and would not subject residents to a trial-and-error process. I note that the 7 dB reduction required is close to the (I assume maximum achievable) 10 dB mentioned by Mr Day. I would expect the 10 dB figure relates to the sound level difference between the best-case and worst-case aircraft orientation. It would seem improbable that 39 Hackett Road has ended up in the worst-case location, and therefore that the full 10 dB improvement could be achieved.
- 5.11 While it would be the Consent Holders responsibility to comply with the conditions, I consider that the Applicant at least needs to illustrate at this stage that compliance can realistically be achieved. It may be that the solution proposed has other effects which should now also be being considered (for example, the visual effects of a large barrier).

6.0 Noise received at Lot 14 The Preserve (Location [x])

- 6.1 If the 'curved' flight path is used for landings (as was observed during our latest site observations), noise levels generated by 35 flights at Lot 14 the Preserve will be 51 dB Ldn.
- 6.2 The use of the 'curved' flight path will however result in an increase in noise levels at The Lodge site, because the landing aircraft now pass within closer proximity. However any increase does not appear to be particularly significant as the dispersion of 'curved' flight paths means only occasional flights generate significant levels at The Lodge. Therefore with either the 'curved' or 'straight' flight paths noise levels at The Lodge remain in the range 48 to 50 dB Ldn. As a result, even with the more stringent limit of 55 dB Ldn now proposed at this location by the Applicant, The Lodge site will not be a key location in terms of compliance.
- 6.3 If the 'straight' arrivals flight path observed during our September 2012 measurements is used, then 35 flights would generate 55 dB Ldn at Lot 14 The Preserve.
- 6.4 Currently there is no commitment from the Applicant as to which flight path they will use.
- 6.5 It therefore seems that if the 50 flights per day sought under the Consent were to be realised, the Applicant would also have to commit to always using the 'curved' flight path to ensure compliance at Lot 14 The Preserve (along with mitigation regarding ground idle noise as discussed above).

7.0 Conclusions

- 7.1 Our 29 January 2013 measurements have confirmed that, in the context of the modifications now proposed to the proposal in the evidence of Mr Day, specific noise mitigation measures will be required relating to ground idle noise and aircraft flight paths.
- 7.2 If satisfactory mitigation is not proposed, the draft condition contained in the evidence of Mr Day will have the effect of limiting the number of flights of the two Cessna Supervan 900 aircraft to a total of 16 per day, considered as a 7 day average.

Kind Regards,



Dr Jeremy Trevathan
Ph.D. B.E.(Hons.) Assoc. NZPI®

Acoustic Engineering Services

27 February 2013

Attachment 5 - Rylander and Bjorkman: *Annoyance by aircraft noise around small airports*



ANNOYANCE BY AIRCRAFT NOISE AROUND SMALL AIRPORTS

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Studies on annoyance caused by aircraft noise exposure were undertaken in eight areas near three small and medium sized airports to assess the validity of a previously developed principle to express the relevant noise exposure. The results showed a dose–response relationship for the extent of annoyance when the noise exposure was expressed as the number of noise events ≥ 70 dB(A). The maximum noise levels did not influence the extent of annoyance. The practical application of this principle for control of aircraft noise is illustrated.

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1. INTRODUCTION

When man is exposed to noise, the noise impulse is registered in the ear and the subsequent signal in the auditory nerve is interpreted in the central nervous system. The interpretation determines the individual's reaction to the noise. The mode of function of the neurophysiological reaction mechanism is such that the values most noticed are those that deviate from the background level. Unusually noisy events are thus important for the reaction that follows exposure.

Environmental noise comprises a number of individual events whose levels may vary considerably. This noise exposure is traditionally expressed as an average value of all noise events occurring within a given time period (the equal energy principle = the equivalent level; L_{Aq}). The relation between this unit and the effect in an exposed population is considered to be linear or near linear.

The noise exposure can also be described as the number of noise events, either all events or events that exceed a certain level, and the noise value of these events, for example the maximum value. These variables are independent of one another.

During the past 20 years, a large number of field studies has been performed to investigate the relationship between exposure to noise different sources in the environment and annoyance in the exposed population. The annoyance is usually expressed as the proportion of persons within a population with a similar exposure who consider themselves to be annoyed.

In the great majority of these investigations the noise level has been expressed as the equivalent noise level. Some studies on aircraft, road traffic and train noise have, however, investigated the number of noise events above a certain level and maximum noise levels separately [1–8].

The results of these studies show a non-linear dose–response relationship. When the number of events increases, the extent of annoyance increases, but only up to a certain breakpoint. If the number of events increases further, the extent of annoyance is not

affected. Of all noise levels from individual events, the most important is the noisiest event (maximum noise level-MNL). The dose-response relationship using levels and number of events as exposure characteristics is not linear. There is thus no direct mathematical relationship between an L_{Aq} value and the MNL/number of events values.

In previous studies on aircraft noise, the number of events has been defined as those ≥ 70 dB(A) [2, 5] and the breakpoint was set at about 70/24 h. The present study was undertaken to study areas around medium and small airports to focus on the part of the dose-response curve that is below this breakpoint. The noise exposure was measured and expressed as the number of overflights ≥ 70 dB(A) and the noise level in dB(A) from the noisiest aircraft overflying at least three times/24 hours. The effects were evaluated by using questionnaires and expressed as the percentage of annoyed persons in each area.

2. MATERIAL AND METHODS

2.1. SELECTION OF AREAS

The investigation was performed in eight areas around three smaller Swedish airports (Landvetter, S ave and Ever od). The investigation in Landvetter was performed during May 1988, S ave during October 1989 and Ever od during May 1993. Each area was designed to extend along the noise contours of the airport in order to obtain a relatively uniform noise exposure within the area.

2.2. NOISE MEASUREMENTS

Noise measurements were made in the middle of each area, using computer based measurement equipment that registered the maximum noise levels (MNL) of each flyover during a two week period. MNL was defined as the highest A-weighted noise level from a single flyover, occurring at least three times per 24 h.

Information was obtained from the local air traffic control about the number of take-offs and landings, at what time they occurred and which type of aircraft and runway was used. The number of noise events in each area was defined as all events equal to or exceeding ≥ 70 dB(A) during 24 h.

The noise dose was also expressed as a time weighted L_{Aq} value (FBN-an equal energy level where events during the evening are weighted with +5 dB and during the night with +10 dB). These values were obtained from calculations using standard methods.

2.3. QUESTIONNAIRE INVESTIGATION

In each area, all individuals between 18 and 75 years of age having lived there for at least one year were identified by using local tax registers. A random sample was selected from this population, using households as the basis. A total of 726 individuals was selected for the study.

Each person selected received a letter in which the investigation was presented as a general study of the living environment. An enclosed questionnaire contained questions about the respondents' general satisfaction with the living area and about annoyance from different sources in the environment. The respondent was asked to grade the annoyance experienced as not annoyed, a little annoyed, rather annoyed or very annoyed. The results were expressed as the percentage of persons in each area who reported that they were "rather" or "very annoyed" by aircraft noise.

TABLE 1
Noise exposure characteristics in the different areas investigated

Area	Number of events ≥ 70 dB(A)	MNL (dB(A))	FBN (dB(A))
L1	48	86	57
L2	42	81	55
L3	38	81	58
L5	22	76	56
L7	5	70	49
S1	24	78	55
E1	7	73	50
E2	2	70	45

3. RESULTS

3.1. NOISE MEASUREMENTS

The results of noise measurements in the different areas are shown in Table 1. It is seen that the number of noise events with a level ≥ 70 dBA ranged from two to 48 per 24 h. The MNL ranged from 70 to 86 dB(A) and the FBN units from 45 to 58.

3.2. QUESTIONNAIRE STUDY

The number of persons who responded to the questionnaire and the extent of annoyance is shown in Table 2. The average response rate was 74% and there was no apparent selection with regard to age or sex in the drop-out (data not reported). The proportion of persons reporting that they were “rather or very annoyed” ranged from 5 to 48%.

3.3. DOSE-RESPONSE RELATIONSHIPS

Figure 1 shows the relation between the extent of annoyance and the number of events ≥ 70 dB(A). It is seen that a linear dose-response relationship was present. The correlation coefficient for the regression line was $r_{xy} = 0.93$. For persons expressing that they were “very annoyed”, the relation was $r_{xy} = 0.80$. There was no indication that the MNL in the different areas influenced the extent of annoyance.

The relation between FBN and the extent of annoyance was $r_{xy} = 0.48$ for “very annoyed” and $r_{xy} = 0.80$ for the extent of “rather + very annoyed”.

TABLE 2
Population sample, respondents and extent of annoyance in the different areas

Area	Sample	Responded (n)	Very annoyed (%)	Rather + very annoyed (%)
L1	39	25	28	48
L2	48	35	17	40
L3	61	40	20	48
L5	75	59	2	23
L7	65	41	3	10
S2	112	83	10	27
E1	77	62	8	18
E2	226	168	1	5

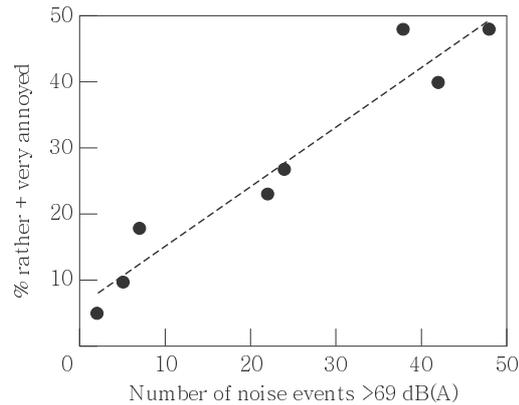


Figure 1. The extent of annoyance in relation to number of events ≥ 70 dB(A).

4. DISCUSSION

The studies were performed with well established techniques, using social survey methods employed in many previous studies on the effects of aircraft and other environmental noises.

The study investigated areas around small and medium sized airports, where one previous study in the US also found that the use of equal energy levels to express the noise exposure gave less precise relationships [9]. In a re-analysis using the dose-response principle, where the number of event and noise levels are treated as independent variables, a linear dose-response relationship was obtained for this type of area [7]. These results are supported by the data from the present investigation. There was no influence by the MNL on the extent of annoyance. This is in contrast to previous studies in which clear dose-response relationships were reported [2]. However, these conclusions were based on annoyance data from areas exposed to more than 70 events (breakpoint), whereas the present study comprised areas below the breakpoint for events.

This could mean that noise levels are less important when the number of events is low and become important when the numbers lose importance (above the breakpoint).

The MNL principle can be used to establish guidelines. For areas around an airport where the number of overflights exceeds the breakpoint (about 70/24 h), the guidelines can be based on MNL only. For areas below the break point, the number of events seems to be the crucial factor.

Critical noise contours used in the MNL principle are narrower sideways from the runway, owing to the calculation of the breakpoint in the number of events. At the end of the take-off path, the critical noise contour is longer because it is determined by a relatively small number of noisy aircraft in a mixed fleet. If these are banned from the airport, or regulated to take off in one direction only, the extent of annoyance in the community will decrease and the other aircraft can continue to operate as before.

By using the MNL principle, actions can now be taken against individual aircraft. This represents an important improvement in the implementation of aircraft noise control around an airport, in comparison with previously used methods in which the equal energy principle made it impossible to regulate individual overflights.

In summary, the MNL principle, as illustrated here, can be used to determine which types of aircraft can use the airport on the basis of the aircraft's noise contours and flight

paths. It is possible to adjust flight paths (control for numbers) and make requirements on the aircraft to decrease the noise level in order to be able to fly over certain areas, as well as to detect individual aircraft that exceed the noise limit. The application of this principle in aircraft noise control thus represents an important improvement in the work to provide a better environment around airports.

ACKNOWLEDGMENTS

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Attachment 6 - Excerpt from NZS6805:1992 Airport noise management and land use planning

average in a 24 hour period, where each event heard at night is considered to be as annoying as 10 such events during the day, and hence is multiplied by 10.

- 1000 Pa²s equates to an Ldn of about 75
- 350 Pa²s equates to an Ldn of about 70
- 100 Pa²s equates to an Ldn of about 65
- 35 Pa²s equates to an Ldn of about 60
- 10 Pa²s equates to an Ldn of about 55

AERODROME (AIRPORT) means any defined area of land or water intended or designed to be used either wholly or partly for the landing, departure, and surface movement of aircraft; and includes any buildings, installations, and equipment on or adjacent to any such area used in connection with the aerodrome or its administration.

AMENITY VALUES means those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes.

1.4 Control boundaries

1.4.1 *The airnoise boundary*

1.4.1.1

The airnoise boundary defines an area around an airport within which the current or future daily amount of aircraft noise exposure will be sufficiently high as to require appropriate land use controls (table 1) or other measures to avoid, remedy or mitigate any adverse effect on the environment, including effects on community health and amenity values whilst recognizing the need to operate an airport efficiently.

1.4.1.2

The average night-weighted sound exposure over a 24 hour period (at the airnoise boundary) shall not exceed 100 Pa²s (65 Ldn), see table 1. The average shall be established over a period of 3 months or such other period as agreed between the operator and the local authority.

1.4.2 *The outer control boundary*

1.4.2.1

The outer control boundary defines an area outside the airnoise boundary within which there shall be no new incompatible land uses (see table 2).

1.4.2.2

The predicted 3 month average night-weighted sound exposure at or outside the outer control boundary shall not exceed 10 Pa²s (55 Ldn).

1.4.3 *Locating the airnoise boundary and the outer control boundary*

1.4.3.1

A projection should be made of future aircraft operations to determine the 10, 35, 100, 350 and 1000 Pa²s (or 55, 60, 65, 70 and 75 Ldn) sound exposure contours. It is recommended that a minimum of a 10 year period be used as the basis of the projected contours, and their location may be estimated for planning purposes using the FAA Integrated Noise Model or other appropriate models.

1.4.3.2

Future airport operations should be projected in terms of:

- (a) Aircraft types (current and future);

- (b) Flight frequencies by aircraft type, time of day, runway use and approach/departure tracks, landing and take-off profiles, and trip lengths;
- (c) Variations in airport operations within a year (e.g. due to seasonal effects);
- (d) Current and future runway capacity and any proposed airport development.

Account should also be taken of:

- (e) Navigation system accuracy and limitations;
- (f) Aircraft operational noise abatement procedures;
- (g) Any available noise monitoring data.

1.4.3.3

The preliminary assessment of the location of the sound exposure contours and the proposed airnoise boundary should be carried out with consultation between the airport operator and the local authority and other interested parties.

1.4.3.4

Only noise resulting from aircraft operations shall be considered when determining sound exposure contours and the airnoise boundary.

1.4.3.5

In the planning stages, the sound exposure predictions should be based on an average day calculated from all operations during the busiest three months of the year.

1.4.3.6

Night-time operations shall be considered in establishing the airnoise boundary. For airports with frequent day and night operations, planning based on night-weighted sound exposure may be adequate. For smaller airports or airports with infrequent or irregular daily usage patterns, planning on the basis of sound exposure contours may not provide an adequate protection area around the airport to avoid sleep disturbance. Local authorities shall also consider the available data on noise levels for the noisiest aircraft types which it is anticipated will use the airport.

1.4.3.7

The local authority should consider whether those contours would be a reasonable basis for future land use planning taking into account:

- (a) The time frame of the projection;
- (b) The extent of non-compliance of existing land uses with table 1;
- (c) The impacts, including economic, social, health and safety of airport development on surrounding land use;
- (d) National, regional and local development, and national and international transportation requirements;
- (e) The effects of aircraft noise on the welfare, amenity values and health of any affected community;
- (f) The effect of the contours on existing aircraft operators' flexibility to meet the community's demand for services in a commercially and economically viable way;
- (g) New Zealand's obligations to international standards relating to aircraft noise emissions, and programmes to phase out noisier aircraft types;

- (h) The costs and benefits of land use controls, based on the airnoise boundary, compared to other options which would achieve the same objective of managing the adverse effects of airport noise.

1.4.3.8

After considering the matters specified in 1.4.3.6 above, the local authority should incorporate into its district plan a map showing the projected sound exposure contours, or showing the contours in a position further from, or closer to the airport, if it considers it more reasonable to do so in the special circumstances of the case. An area shall be chosen to contain the 100 Pa²s (or 65 Ldn) contour. The perimeter of this area is the airnoise boundary. Similarly an area shall be chosen to contain the 10 Pa²s (or 55 Ldn) contour. The perimeter of this area is the outer control boundary. These boundaries should also be shown on the map.

1.4.3.9

The formal determination of airport planning involves the public process set out in the Resource Management Act 1991 First Schedule (Preparation, Change and Review of Policy Statements and Plans Part I).

1.4.3.10

If the airport operator, local authority or any other affected or interested party cannot agree on the location of the airnoise boundary and/or the outer control boundary, appropriate remedies exist within the Resource Management Act (as outlined in the First Schedule Parts I and II) for the matter to be heard by the Planning Tribunal.

1.4.3.11

Having completed the planning process the local authority shall take such steps as are necessary to give effect to the compatible land use criteria recommended in table 1 and table 2.

1.4.4 Implementation

1.4.4.1

The airport operator shall manage its operations so that the 3 month (or such other period as is agreed) average 24 hour night-weighted sound exposure does not exceed the limit at or outside the airnoise boundary. When a transition period is necessary for an airport to comply with the limits at the airnoise boundary (for example to enable the introduction of quieter aircraft) then the local authority plan shall specify the date by which compliance must be achieved.

1.4.4.2

If the noise produced by airport operations exceeds the limits at the Airnoise Boundary, the airport operator shall take immediate steps to reduce the sound exposure to meet the limits.

1.4.4.3

To facilitate a co-operative approach to managing local airport noise issues, it is recommended that the airport operator convene a standing "Airport Noise Abatement Committee" seeking involvement from:

- (a) Aircraft and airline operators;
- (b) Airways Corporation of New Zealand;
- (c) Local authorities/community representatives.

1.4.4.4

Nothing in this Standard (such as in 1.4.4.1 specifying a date by when compliance must be achieved) should be construed as to require any local authority or airport operators to take short term measures to achieve compatibility which would impose an undue burden on either the local authority, airport operators, airlines, aircraft operators or the affected community. The emphasis

should be on achieving long term compatibility within the time frame of the planning process, using practical measures.

1.5 Noise monitoring

1.5.1

The purpose of monitoring is to gather objective data of sound exposures to:

- (a) Determine compliance with the Standard and/or the District Plan provisions;
- (b) Validate the compatible land use planning process;
- (c) Provide a basis for evaluating sound reduction measures.

1.5.2

A noise measurement programme, where appropriate, should be implemented to monitor compliance with sound levels approved in the District Plan.

1.5.3

Noise measurements shall be made according to Part 2 of this Standard.

1.5.4

The instrumentation shall meet the requirements of Part 3 of this Standard.

1.6 Review of airnoise boundary and outer control boundary

1.6.1

Due to changing circumstances, it may be necessary to review the location of the sound exposure contours and the airnoise boundary during the period of the projected aircraft operations. This review should be considered if it appears that future operations would result in sound exposures more than 3 dB above the specified contours. Any review should follow the steps set out in 1.4.3 and 1.4.4.

C1.6

In any case, section 79 of the Resource Management Act 1991 requires a local authority plan to be reviewed not later than 10 years after the plan becomes operative.

1.6.3

Subsequent validation of sound exposure contours produced by computer model may be beneficial.

1.6.4

If validation is desired, this may be achieved by periodic monitoring of both airport operations (including aircraft types, flight frequencies, departure and arrival tracks) and noise measurements. Techniques for such monitoring are given in Parts 2 and 3.

1.7 Aircraft noise management

1.7.1

Aircraft operators shall ensure that emission of noise from aircraft operating within close proximity to airports is kept as low as possible, consistent with safety.

1.7.2

Aircraft operators shall ensure that standard flight procedures are followed at all airports except where terrain or airspace restrictions dictate otherwise.

1.7.3

If current or future airport operations exceed the planned sound exposure outside the

airnoise boundary then the airport operator should take steps to reduce the sound exposure, including but not limited to:

- (a) Using noise abatement procedures where applicable;
- (b) Phasing out of noisy aircraft over an appropriate period;
- (c) Utilizing air traffic control procedures to avoid noise sensitive areas;
- (d) Placing restrictions on aircraft operations by type or time of day or frequency of use.

1.7.4

Where an airport operator requires noise abatement procedures to be followed by aircraft using the airport, only standard International Civil Aviation Organisation noise abatement procedures may be imposed.

1.7.5

Nothing in this document shall preclude a pilot in command from using full power or following any flight path as he/she deems necessary in the circumstance of that flight.

1.8 Explanation of tables

C1.8.1

All considerations of annoyance, health and welfare with respect to noise are based on the long term integrated adverse responses of people. There is considerable weight of evidence that a person's annoyance reaction depends on the average daily sound exposure received. The short term annoyance reaction to individual noise events is not explicitly considered since only the accumulated effects of repeated annoyance can lead to adverse environmental effects on public health and welfare. Thus in all aircraft noise considerations the noise exposure is based on an average day over an extended period of time - usually a yearly or seasonal average. (Further details may be obtained from US EPA publication 500/9-74-004 "Information on levels of environmental noise requisite to protect public health and welfare with an adequate margin of safety").

1.8.2

Table 1 enumerates the recommended criteria for land use planning within the airnoise boundary i.e. 24 hour average night-weighted sound exposure in excess of 100 Pa²s (65 Ldn).

1.8.3

Table 2 enumerates the recommended criteria for land use planning within the outer control boundary i.e. 24 hour average night-weighted sound exposure in excess of 10 Pa²s.

**Table 1
RECOMMENDED NOISE CONTROL CRITERIA FOR LAND USE PLANNING INSIDE THE
AIRNOISE BOUNDARY**

Sound exposure Pa ² s (1)	Recommended control measures	Day/night level Ldn (2)
>100	New residential, schools, hospitals or other noise sensitive uses are prohibited. Steps shall be taken to provide existing residential properties with appropriate acoustic insulation to ensure a satisfactory internal noise environment. Alterations or additions to existing residences or other noise sensitive uses shall be permitted only if fitted with appropriate acoustic insulation.	>65
>350	Consideration should be given to purchasing existing homes, or relocating residents, and rezoning the area to non-residential use only.	>70
>1000	There is a high possibility of adverse health effects. Land shall not be used for residential or other noise sensitive uses.	>75

NOTE –

(1) Night-weighted sound exposure in pascal-squared-seconds or “pasques”.

(2) Day/night level (Ldn) values given are approximate for comparison purposes only and do not form the base for the table.

**Table 2
RECOMMENDED NOISE CONTROL CRITERIA FOR LAND USE PLANNING INSIDE THE
OUTER CONTROL BOUNDARY BUT OUTSIDE THE AIR NOISE BOUNDARY**

Sound exposure Pa ² s (1)	Recommended control measures	Day/night level Ldn (2)
>10	New residential, schools, hospitals or other noise sensitive uses should be prohibited unless a district plan permits such uses, subject to a requirement to incorporate appropriate acoustic insulation to ensure a satisfactory internal noise environment. Alterations or additions to existing residences or other noise sensitive uses should be fitted with appropriate acoustic insulation and encouragement should be given to ensure a satisfactory internal environment throughout the rest of the building.	>55

NOTE –

(1) Night-weighted sound exposure in pascal-squared-seconds or “pasques”.

(2) Day/night level (Ldn) values given are approximate for comparison purposes only and do not form the base for the table.

BEFORE THE ENVIRONMENT COURT

ENV-2012-CHC-116

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of a direct referral by Skydive Queenstown Limited for a resource consent application to operate a commercial parachute and associated transport operation at Remarkables Station, State Highway 6, Queenstown.

STATEMENT OF EVIDENCE OF JOHN MAURICE FOGDEN

DATED 14 MARCH 2013

1.0 INTRODUCTION

1.1 My name is John Maurice Fogden. I am a Director of Total Aviation Quality Ltd. ("TAQ"). TAQ was established in 2010 to provide independent technical, compliance and safety advice and risk management to the aviation industry as well as to corporate and government agencies and other industry sectors that interface with aviation.

- 1.2 Since 1977 I have accumulated 9000 hrs of flight time, primarily in helicopters. I hold (or have previously held) commercial pilot licences in South Africa, Australia, Papua New Guinea and New Zealand. I have been employed in operational flying, chief pilot, managerial and safety related positions in organisations both in New Zealand and abroad. I am broadly familiar with general aviation flight activity in the Queenstown region having flown helicopter tourist operations based from Queenstown International Airport (QIA) between 1995 and 1997.
- 1.3 From 1997 to 2002 I was employed by the New Zealand Civil Aviation Authority as a Field-based Aviation Safety Adviser (FSA). In this role I was tasked with representing the regulatory authority 'in the field' providing operational safety advice to all aspects of the general aviation sector including both commercial and recreational aviation activities. To expand further on this role, I was tasked with visiting a broad range of commercial and recreational activities at their bases of operation and also to have a presence at airports and airfields around the country to promote safe and compliant aviation activities and to provide aviation safety advice in both formal and informal environments.
- 1.4 In 2002 I was appointed Manager Rotary Wing and Agricultural Operations within the General Aviation Group at CAA. In this position the CAA Field Safety Advisers were a direct report to our Group. In support of their role, I routinely visited Queenstown to attend the Queenstown/Milford

Airspace User Group (QMUG) meetings. This group was one of many around New Zealand endorsed by the Director of Civil Aviation and comprised of local aviation operators, airfield management and air traffic control, meeting regularly to encourage safe and cohesive operations on a localised basis. Attendance at these meetings has afforded me a continued appreciation of the unique dynamics of the aviation environment in the Wakatipu basin.

1.5 While I do not claim it to be a core area of my expertise, since 2011 I have contracted to the NZ Aviation Industry Association (AIA) as the sole provider of Environmental Noise Abatement training for pilots. Attendance at this 4 hour training presentation is a pre-requisite for accreditation under the AIA **Aircare** Environmental Management System initiative. I have presented this training to more than 350 pilots in New Zealand. This training is focused on awareness of aircraft noise on amenity values, how aircraft noise is generated and what methods pilots can employ to reduce this impact.

1.6 I have read and am familiar with the Code of Conduct for Expert Witnesses in the current (2006) Environment Court Practice Note. I agree to comply with this code of conduct in giving evidence to this hearing and have done so in preparing this written brief. The evidence I am giving is within my area of expertise, except where I state I am relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the

opinions expressed. I understand it is my duty to assist the hearing committee impartially on relevant matters within my area of expertise and that I am not an advocate for the party which has engaged me.

1.7 On this occasion I have been engaged by Jacks Point Residents and Owners Association (JPROA) to provide expert advice on the safe conduct and limitations of aircraft operations on and in the vicinity of Jardine's airstrip situated at Remarkables Station, State Highway 6, Queenstown.

1.8 The specific purpose of this written brief is to provide evidence in support of Dr. Jeremy Trevathan's Brief regarding comparative aircraft noise associated with ground operations at Queenstown Skydive Ltd. (QSL's) base of operations at Jardine's airstrip.

1.9 To assist with providing this evidence I witnessed normal operations at Jardine's airstrip on 11th January 2013 during which time 2 Supercub 900's (ZK-KPH and ZK-NZO) were in use.

2.0 BACKGROUND

2.1 QSL has conducted operations at Jardine's airstrip since 1990. During the early period of operations the aircraft of choice for commercial parachute operations was the small piston-engine Cessna 185 equipped with a two blade propeller. QSL operated 2 of this aircraft type. The predominant perceived noise generated by small aircraft is a function of the speed of rotation of the propeller (RPM). In the case of the Cessna 185,

this could be as high as 2750 RPM at take-off reducing to 2500 RPM (ref: NZCAA) during the climb phase. Propeller tip speeds at these high RPM settings generate a very high noise signature. However, the advantage of the piston engine powering the small Cessna 185 is that (like a car) the engine can be shut down, after a brief cooling period, and the shut down / start up cycle has little or no detrimental effect on the engine.

2.2 More recently other aircraft have become available that have found favour with the commercial parachute industry offering greater passenger capacity and improved performance and reliability.

2.3 The first of these, operated by QSL until quite recently, is the New Zealand manufactured PAC Cresco. Unlike the small Cessna, the Cresco is powered by a modern turbine engine. There are many efficiencies to be gained by the use of a turbine powered aircraft, among which is a significantly lower noise signature. This is the result of a lower propeller RPM setting for take-off and climb (typically 2000 – 2200 RPM (ref: engine manufacturer's published information <http://www.pwc.ca/en/engines/pt6a>)). The down-side of the turbine engine is its high capital cost and the limitations associated with starting and stopping the engine. During each start a turbine engine will experience an internal thermal increase from 0° to 800° Celsius within the space of a few seconds. This sequence has a cumulative detrimental effect of the internal components and so individual 'start cycles' are

recorded. Various components within the turbine engine are limited as to the number of 'start cycles' they can safely be exposed to and as these limits are reached the parts need to be replaced. The cost of replacing these parts is significant and a cumulative financial 'cost' of each engine start is calculated into a dollar figure. This then presents a strong incentive to limit or manage the number of 'start cycles' on an engine. In the context of the QSL operation, there is a strong financial incentive to keep the engine running during each turn-around, rather than shutting the engine off as could be the case with the earlier Cessna aircraft where no such penalties were incurred. During the period of use of the Cresco by QSL, the time on the ground that the turbine engine was left running at low RPM during each turn around, referred to as 'ground idle,' produced minimum intrusion. The particular turbine engine fitted to the Cresco is a derivative of the Pratt & Whitney PT-6, an engine commonly found fitted to many different aircraft.

- 2.4 The second subject aircraft is known as the Supervan 900. QSL now operate 2 examples of this type exclusively. They no longer operate the small piston-powered Cessna 185's and they no longer operate the PT-6 powered Cresco. Passenger capacity has increased from 6 (Cessna 185) to 19 in the Supervan. The Supervan is also powered by a turbine engine, in this case the engine is known as a Honeywell TPE-331. Horsepower has increased from 300hp (Cessna 185) to 900 in the Supervan.

2.5 There is a fundamental difference between the Pratt & Whitney (P&W) PT-6 turbine that powered the earlier Cresco and the Honeywell turbine that powers the Supervan now in use. While the basic engine design principles are the same, there is a significant down-side to the Honeywell design directly attributable to the positioning of the compressor at the front of the engine. The positioning of the compressor in this fashion results in a 'ground idle' noise signature that is twice that of the P&W, as has been identified in Dr. Trevathan's noise measurements. This noise signature is acknowledged by the engine manufacturer and they further state that the noise is greatest forward of the aircraft up to 30° either side of the aircraft centreline. The noise signature falls away beyond the 30°arc.

2.6 Once the aircraft is moving for take-off, and in flight, the engine (compressor) noise becomes subservient to the noise generated by the propeller RPM. The Supervan is fitted with a four blade propeller which is operated at a significantly lower setting of 1600 RPM [www.texasturbines.com] (Cresco 2200 RPM and Cessna 185 2750 RPM). The Supervan is comparatively quiet in flight, but has the unavoidable ground idle noise signature.

3.0 SUMMARY

3.1 Dr. Trevathan's measurements have identified a significant noise signature generated during ground idle ground with the Supervan 900. The manufacturer acknowledges this noise is

high and that it is projected forward of the aircraft within an arc of 30° of the aircraft's centreline. It is also acknowledged to be marginally louder on the right hand side of the aircraft. This noise signature is unique to the Honeywell engine design which powers the Supervan. This same ground idle noise would not have been evident on the previous two types operated by QSL.

- 3.2 Being a turbine engine, the Honeywell TPE331 fitted to the Supervan is also bound by the same thermo-dynamic limitations that apply to the P&W in that the engine is operationally and financially sensitive to 'start cycles.' Put simply – it is uneconomic to shut the engine off for any period of idle time anticipated to be less than 15 - 20 minutes.

4.0 MITIGATION OF GROUND IDLE NOISE

- 4.1 Evidence submitted by Mr. Day (MDA Ltd.) para 6.5 suggests three methods of mitigating the effects of the ground idle noise. While such measures, either individually or collectively, may contribute to mitigating the noise, no evidence is provided as to the extent of the mitigation. I now comment on each from a safety and/or operational perspective:

- i. Reducing idling periods – I consider that with a greater awareness of the detrimental effect of ground idle noise, there would be opportunities to streamline time spent on the ground during turn-around and re-fuelling operations. If this could be achieved, it would

have to be achieved without in any way whatsoever compromising the safety briefings and pre-boarding preparation and rigging checks normally carried out just before boarding or proper re-fuelling safety procedures.

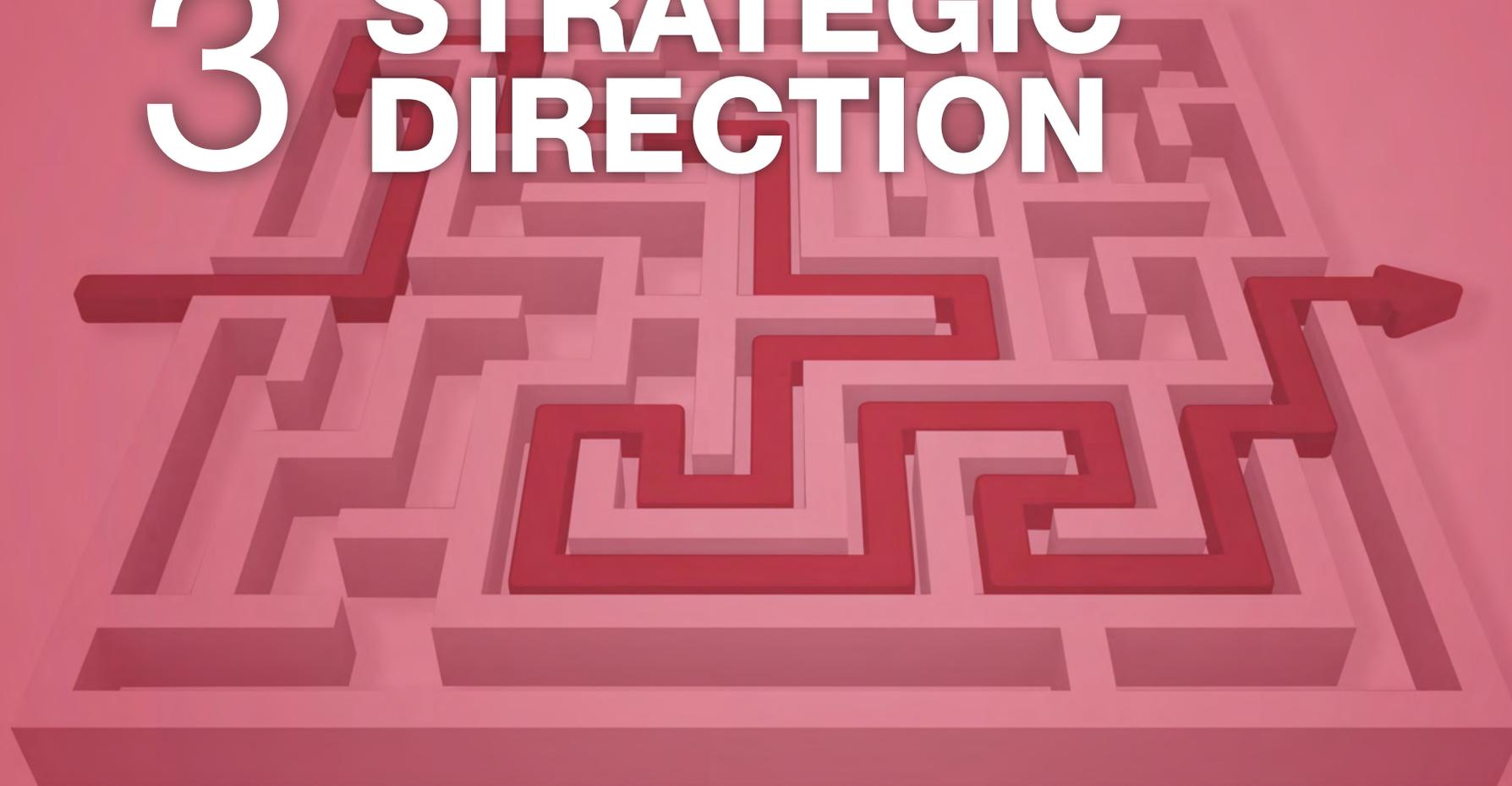
- ii. Changing the orientation of the aircraft during boarding – Given the manufacturers advice on the directivity of the noise associated with the compressor during ground idle, there may be the opportunity to reduce the impact of the noise by changing the orientation of the aircraft during ground operations (re-loading and refuelling). This would be an operational matter which, if implemented, would require a review of current passenger ground handling protocols. Any change from the current orientation (aligning the aircraft with the take-off direction before loading as noted during my observation on 11th January 2013) would likely introduce undesirable side-loads on the aircraft undercarriage when turning onto the runway direction after loading. The additional magnitude of load on the undercarriage would be in the region of 1700kgs (19 x 90kg passengers fully rigged). I would expect the need to turn the aircraft on the ground when fully loaded (particularly on an unprepared surface such as a grass airstrip) to have a highly detrimental effect on the aircraft undercarriage, engine handling and also on the surface of the turf in the turning area.

- iii Acoustic barrier (earth bund or fence) – While there may be other considerations outside my area of expertise relating to this option, from a safety perspective I consider the construction of a bund or fence in the vicinity of the operational area of the airstrip the least desirable option as it would create a potential physical restriction on aircraft movement particularly when two aircraft are operating simultaneously and also an added ‘obstacle avoidance’ distraction to pilots when manoeuvring at the Eastern end of the airstrip.

John Maurice Fogden

14th March 2013

3 STRATEGIC DIRECTION



3.1

Purpose

This chapter sets out the over-arching strategic direction for the management of growth, land use and development in a manner that ensures sustainable management of the Queenstown Lakes District's special qualities:

- Dramatic alpine landscapes free of inappropriate development
- Clean air and pristine water
- Vibrant and compact town centres
- Compact and connected settlements that encourage public transport, biking and walking
- Diverse, resilient, inclusive and connected communities
- A district providing a variety of lifestyle choices
- An innovative and diversifying economy based around a strong visitor industry
- A unique and distinctive heritage
- Distinctive Ngai Tahu values, rights and interests

This direction is provided through a set of Strategic Goals, Objectives and Policies which provide the direction for the more detailed provisions related to zones and specific topics contained elsewhere in the District Plan.

3.2

Goals, Objectives and Policies

3.2.1 Goal - Develop a prosperous, resilient and equitable economy.

Objective	3.2.1.1	Recognise, develop and sustain the Queenstown and Wanaka central business areas as the hubs of New Zealand's premier alpine resorts and the District's economy.
Policies	3.2.1.1.1	Provide a planning framework for the Queenstown and Wanaka central business areas that enables quality development and enhancement of the centres as the key commercial hubs of the District, building on their existing functions and strengths.
	3.2.1.1.2	Avoid commercial rezoning that could fundamentally undermine the role of the Queenstown and Wanaka central business areas as the primary focus for the District's economic activity.
	3.2.1.1.3	Promote growth in the visitor industry and encourage investment in lifting the scope and quality of attractions, facilities and services within the Queenstown and Wanaka central business areas.
Objective	3.2.1.2	Recognise, develop and sustain the key local service and employment functions served by commercial centres and industrial areas outside of the Queenstown and Wanaka central business areas in the District.

	Policies	3.2.1.2.1	Avoid commercial rezoning that would fundamentally undermine the key local service and employment function role that the larger urban centres outside of the Queenstown and Wanaka central business areas fulfil.
		3.2.1.2.2	Reinforce and support the role that township commercial precincts and local shopping centres fulfil in serving local needs.
		3.2.1.2.3	Avoid non-industrial activities occurring within areas zoned for Industrial activities.
Objective	3.2.1.3		Enable the development of innovative and sustainable enterprises that contribute to diversification of the District's economic base and create employment opportunities.
	Policies	3.2.1.3.1	Provide for a wide variety of activities and sufficient capacity within commercially zoned land to accommodate business growth and diversification.
		3.2.1.3.2	Encourage economic activity to adapt to and recognise opportunities and risks associated with climate change and energy and fuel pressures.
Objective	3.2.1.4		Recognise the potential for rural areas to diversify their land use beyond the strong productive value of farming, provided a sensitive approach is taken to rural amenity, landscape character, healthy ecosystems, and Ngai Tahu values, rights and interests.
Objective	3.2.1.5		Maintain and promote the efficient operation of the District's infrastructure, including designated Airports, key roading and communication technology networks.

3.2.2 Goal - The strategic and integrated management of urban growth

Objective	3.2.2.1	Ensure urban development occurs in a logical manner: <ul style="list-style-type: none"> • to promote a compact, well designed and integrated urban form; • to manage the cost of Council infrastructure; and • to protect the District's rural landscapes from sporadic and sprawling development. 	
	Policies	3.2.2.1.1	Apply Urban Growth Boundaries (UGBs) around the urban areas in the Wakatipu Basin (including Jack's Point), Arrowtown and Wanaka.
		3.2.2.1.2	Apply provisions that enable urban development within the UGBs and avoid urban development outside of the UGBs.
		3.2.2.1.3	Manage the form of urban development within the UGBs ensuring: <ul style="list-style-type: none"> • Connectivity and integration with existing urban development; • Sustainable provision of Council infrastructure; and • Facilitation of an efficient transport network, with particular regard to integration with public and active transport systems

	3.2.2.1.4	Encourage a higher density of residential development in locations close to town centres, local shopping zones, activity centres, public transport routes and non-vehicular trails.
	3.2.2.1.5	Ensure UGBs contain sufficient suitably zoned land to provide for future growth and a diversity of housing choice.
	3.2.2.1.6	Ensure that zoning enables effective market competition through distribution of potential housing supply across a large number and range of ownerships, to reduce the incentive for land banking in order to address housing supply and affordability.
	3.2.2.1.7	That further urban development of the District's small rural settlements be located within and immediately adjoining those settlements.
Objective	3.2.2.2	Manage development in areas affected by natural hazards.
Policies	3.2.2.2.1	Ensure a balanced approach between enabling higher density development within the District's scarce urban land resource and addressing the risks posed by natural hazards to life and property.

3.2.3 **Goal - A quality built environment taking into account the character of individual communities**

Objective	3.2.3.1	Achieve a built environment that ensures our urban areas are desirable and safe places to live, work and play.
Policies	3.2.3.1.1	Ensure development responds to the character of its site, the street, open space and surrounding area, whilst acknowledging the necessity of increased densities and some change in character in certain locations.
	3.2.3.1.2	That larger scale development is comprehensively designed with an integrated and sustainable approach to infrastructure, buildings, street, trail and open space design.
	3.2.3.1.3	Promote energy and water efficiency opportunities, waste reduction and sustainable building and subdivision design.
Objective	3.2.3.2	Protect the District's cultural heritage values and ensure development is sympathetic to them.
Policies	3.2.3.2.1	Identify heritage items and ensure they are protected from inappropriate development.

3.2.4 **Goal - The protection of our natural environment and ecosystems**

Objective	3.2.4.1	Promote development and activities that sustain or enhance the life-supporting capacity of air, water, soil and ecosystems.
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Objective	3.2.4.2	Protect areas with significant Nature Conservation Values.
	Policies	<p>3.2.4.2.1 Identify areas of significant indigenous vegetation and significant habitats of indigenous fauna, referred to as Significant Natural Areas on the District Plan maps and ensure their protection.</p> <p>3.2.4.2.2 Where adverse effects on nature conservation values cannot be avoided, remedied or mitigated, consider environmental compensation as an alternative.</p>
Objective	3.2.4.3	Maintain or enhance the survival chances of rare, endangered, or vulnerable species of indigenous plant or animal communities.
	Policies	3.2.4.3.1 That development does not adversely affect the survival chances of rare, endangered, or vulnerable species of indigenous plant or animal communities
Objective	3.2.4.4	Avoid exotic vegetation with the potential to spread and naturalise.
	Policies	3.2.4.4.1 That the planting of exotic vegetation with the potential to spread and naturalise is banned.
Objective	3.2.4.5	Preserve or enhance the natural character of the beds and margins of the District’s lakes, rivers and wetlands.
	Policies	3.2.4.5.1 That subdivision and / or development which may have adverse effects on the natural character and nature conservation values of the District’s lakes, rivers, wetlands and their beds and margins be carefully managed so that life-supporting capacity and natural character is maintained or enhanced.
Objective	3.2.4.6	Maintain or enhance the water quality and function of our lakes, rivers and wetlands..
	Policies	3.2.4.6.1 That subdivision and / or development be designed so as to avoid adverse effects on the water quality of lakes, rivers and wetlands in the District.
Objective	3.2.4.7	Facilitate public access to the natural environment.
	Policies	3.2.4.7.1 Opportunities to provide public access to the natural environment are sought at the time of plan change, subdivision or development.
Objective	3.2.4.8	Respond positively to Climate Change.
	Policies	3.2.4.8.1 Concentrate development within existing urban areas, promoting higher density development that is more energy efficient and supports public transport, to limit increases in greenhouse gas emissions in the District.

3.2.5 **Goal - Our distinctive landscapes are protected from inappropriate development.**

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| Objective | 3.2.5.1 | Protect the natural character of Outstanding Natural Landscapes and Outstanding Natural Features from subdivision, use and development. |
| | Policies | 3.2.5.1.1 Identify the district's Outstanding Natural Landscapes and Outstanding Natural Features on the District Plan maps, and protect them from the adverse effects of subdivision and development. |
| Objective | 3.2.5.2 | Minimise the adverse landscape effects of subdivision, use or development in specified Rural Landscapes. |
| | Policies | 3.2.5.2.1 Identify the district's Rural Landscape Classification on the district plan maps, and minimise the effects of subdivision, use and development on these landscapes. |
| Objective | 3.2.5.3 | Direct new subdivision, use or development to occur in those areas which have potential to absorb change without detracting from landscape and visual amenity values. |
| | Policies | 3.2.5.3.1 Direct urban development to be within Urban Growth Boundaries (UGB's) where these apply, or within the existing rural townships. |
| Objective | 3.2.5.4 | Recognise there is a finite capacity for residential activity in rural areas if the qualities of our landscape are to be maintained. |
| | Policies | 3.2.5.4.1 Give careful consideration to cumulative effects in terms of character and environmental impact when considering residential activity in rural areas. |
| | | 3.2.5.4.2 Provide for rural living opportunities in appropriate locations. |
| Objective | 3.2.5.5 | Recognise that agricultural land use is fundamental to the character of our landscapes. |
| | Policies | 3.2.5.5.1 Give preference to farming activity in rural areas except where it conflicts with significant nature conservation values. |
| | | 3.2.5.5.2 Recognise that the retention of the character of rural areas is often dependent on the ongoing viability of farming and that evolving forms of agricultural land use which may change the landscape are anticipated. |

3.2.6 **Goal - Enable a safe and healthy community that is strong, diverse and inclusive for all people.**

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| Objective | 3.2.6.1 | Provide access to housing that is more affordable. |
|-----------|----------------|--|

	Policies	3.2.6.1.1	Provide opportunities for low and moderate income Households to live in the District in a range of accommodation appropriate for their needs.
		3.2.6.1.2	In applying plan provisions, have regard to the extent to which minimum site size, density, height, building coverage and other controls influence Residential Activity affordability.
Objective	3.2.6.2		Ensure a mix of housing opportunities.
	Policies	3.2.6.2.1	Promote mixed densities of housing in new and existing urban communities.
		3.2.6.2.2	Enable high density housing adjacent or close to the larger commercial centres in the District.
		3.2.6.2.3	Explore and encourage innovative approaches to design to provide access to affordable housing.
Objective	3.2.6.3		Provide a high quality network of open spaces and community facilities.
	Policies	3.2.6.3.1	Ensure that open spaces and community facilities are accessible for all people.
		3.2.6.3.2	That open spaces and community facilities are located and designed to be desirable, safe, accessible places.
Objective	3.2.6.4		Ensure planning and development maximises opportunities to create safe and healthy communities through subdivision and building design.
	Policies	3.2.6.4.1	Ensure Council-led and private design and development of public spaces and built development maximises public safety by adopting “Crime Prevention Through Environmental Design”.
		3.2.6.4.2	Ensure Council-led and private design and development of public spaces and built development maximises the opportunity for recreational and commuting walking and cycling.

3.2.7 Goal - Council will act in accordance with the principles of the Treaty of Waitangi and in partnership with Ngai Tahu.

Objective	3.2.7.1	Protect Ngai Tahu values, rights and interests, including taonga species and habitats, and wahi tupuna.
Objective	3.2.7.2	Enable the expression of kaitiakitanga by providing for meaningful collaboration with Ngai Tahu in resource management decision making and implementation.

4 URBAN DEVELOPMENT

4.1

Purpose

The purpose of this Chapter is to set out the objectives and policies for managing the spatial location and layout of urban development within the District. This chapter forms part of the strategic intentions of this District Plan and will guide planning and decision making for the District’s major urban settlements and smaller urban townships. This chapter does not address site or location specific physical aspects of urban development (such as built form) - reference to zone and District wide chapters is required for these matters.

The District experiences considerable growth pressures. Urban growth within the District occurs within an environment that is revered for its natural amenity values, and the District relies, in large part for its social and economic wellbeing on the quality of the landscape, open spaces and environmental image. If not properly controlled, urban growth can result in adverse effects on the quality of the built environment, with flow on effects to the impression and enjoyment of the District by residents and visitors. Uncontrolled urban development can result in the fragmentation of rural land; and poses risks of urban sprawl, disconnected urban settlements and a poorly coordinated infrastructure network. The roading network of the District is under some pressure and more low density residential development located remote from employment and service centres has the potential to exacerbate such problems.

The objectives and policies for Urban Development provide a framework for a managed approach to urban development that utilises land and resources in an efficient manner, and preserves and enhances natural amenity values. The approach seeks to achieve integration between land use, transportation, services, open space networks, community facilities and education; and increases the viability and vibrancy of urban areas.

Urban Growth Boundaries are established for the key urban centres of Queenstown, Wanaka and Arrowtown, providing a tool to manage anticipated growth while protecting the individual roles, heritage and character of these areas. Specific policy is provided for these areas, including provision for increased density to contribute to a more compact and connected urban form.

4.2

Objectives and Policies

4.2.1 **Objective - Urban development is coordinated with infrastructure and services and is undertaken in a manner that protects the environment, rural amenity and outstanding natural landscapes and features.**

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| Policies | <p>4.2.1.1 Land within and adjacent to the major urban settlements will provide the focus for urban development, with a lesser extent accommodated within smaller rural townships.</p> <p>4.2.1.2 Urban development is integrated with existing public infrastructure, and is designed and located in a manner consistent with the capacity of existing networks.</p> <p>4.2.1.3 Encourage a higher density of residential development in locations that have convenient access to public transport routes, cycleways or are in close proximity to community and education facilities.</p> <p>4.2.1.4 Development enhances connections to public recreation facilities, reserves, open space and active transport networks.</p> <p>4.2.1.5 Urban development is contained within or immediately adjacent to existing settlements.</p> |
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4.2.1.6 Avoid sporadic urban development that would adversely affect the natural environment, rural amenity or landscape values; or compromise the viability of a nearby township.

4.2.1.7 Urban development maintains the productive potential and soil resource of rural land.

4.2.2 Objective - Urban Growth Boundaries are established as a tool to manage the growth of major centres within distinct and defensible urban edges.

- Policies
- 4.2.2.1** Urban Growth Boundaries define the limits of urban growth, ensuring that urban development is contained within those identified boundaries, and urban development is avoided outside of those identified boundaries.
 - 4.2.2.2** Urban Growth Boundaries are of a scale and form which is consistent with the anticipated demand for urban development over the planning period, and the appropriateness of the land to accommodate growth.
 - 4.2.2.3** Within Urban Growth Boundaries, land is allocated into various zones which are reflective of the appropriate land use.
 - 4.2.2.4** Not all land within Urban Growth Boundaries will be suitable for urban development, such as (but not limited to) land with ecological, heritage or landscape significance; or land subject to natural hazards. The form and location of urban development shall take account of site specific features or constraints to protect public health and safety.
 - 4.2.2.5** Urban Growth Boundaries may need to be reviewed and amended over time to address changing community needs.

4.2.3 Objective – Within Urban Growth Boundaries, provide for a compact and integrated urban form that limits the lateral spread of urban areas, and maximises the efficiency of infrastructure operation and provision.

- Policies
- 4.2.3.1** Provide for a compact urban form that utilises land and infrastructure in an efficient and sustainable manner, ensuring:
 - connectivity and integration;
 - the sustainable use of public infrastructure;
 - convenient linkages to the public and active transport network; and
 - housing development does not compromise opportunities for commercial or community facilities in close proximity to centres.
 - 4.2.3.2** Enable an increased density of residential development in close proximity to town centres, public transport routes, community and education facilities.

- 4.2.3.3** Low density development does not compromise opportunities for future urban development
- 4.2.3.4** Urban development occurs in locations that are adequately serviced by existing public infrastructure, or where infrastructure can be efficiently upgraded.
- 4.2.3.5** For urban centres where Urban Growth Boundaries apply, new public infrastructure networks are limited exclusively to land within defined Urban Growth Boundaries.
- 4.2.3.6** Development improves connections to recreational and community facilities, and enhances the amenity and vibrancy of urban areas.
- 4.2.3.7** The edges of Urban Growth Boundaries are managed to provide a sensitive transition to rural areas.
- 4.2.3.8** Land use within the Air Noise Boundary or Outer Control Boundary of the Queenstown Airport is managed to prohibit or limit the establishment of Activities Sensitive to Aircraft Noise.

Queenstown



4.2.4 **Objective - Manage the scale and location of urban growth in the Queenstown Urban Growth Boundary.**

Policies

- 4.2.4.1** Limit the spatial growth of Queenstown so that:
- the natural environment is protected from encroachment by urban development
 - sprawling of residential settlements into rural areas is avoided
 - residential settlements become better connected through the coordinated delivery of infrastructure and community facilities
 - transport networks are integrated and the viability of public and active transport is improved
 - the provision of infrastructure occurs in a logical and sequenced manner
 - the role of Queenstown Town Centre as a key tourism and employment hub is strengthened
 - the role of Frankton in providing local commercial and industrial services is strengthened
- 4.2.4.2** Ensure that development within the Queenstown Urban Growth Boundary:
- Provides a diverse supply of residential development to cater for the needs of residents and visitors
 - Provides increased density in locations close to key public transport routes and with convenient access to the Queenstown Town Centre
 - Provides an urban form that is sympathetic to the natural setting and enhances the quality of the built environment
 - Provides infill development as a means to address future housing demand
 - Provides a range of urban land uses that cater for the foreseeable needs of the community
 - Maximises the efficiency of existing infrastructure networks and avoids expansion of networks before it is needed for urban development
 - Supports the coordinated planning for transport, public open space, walkways and cycleways and community facilities
 - Does not diminish the qualities of significant landscape features
- 4.2.4.3** Protect the Queenstown airport from reverse sensitivity effects, and maintain residential amenity, through managing the effects of aircraft noise within critical listening environments of new or altered buildings within the Air Noise Boundary or Outer Control Boundary.
- 4.2.4.4** Manage the adverse effects of noise from Queenstown Airport by conditions in Designation 2 including a requirement for a Noise Management Plan and a Queenstown Airport Liaison Committee.

Arrowtown

4.2.5 Objective - Manage the scale and location of urban growth in the Arrowtown Urban Growth Boundary.



Policies

4.2.5.1 Limit the spatial growth of Arrowtown so that:

- Adverse effects of development outside the Arrowtown Urban Growth Boundary are avoided.
- the character and identity of the settlement, and its setting within the landscape is preserved or enhanced.

4.2.5.2 Ensure that development within the Arrowtown Urban Growth Boundary provides:

- an urban form that is sympathetic to the character of Arrowtown, including its scale, density, layout and legibility in accordance with the Arrowtown Design Guidelines 2016.

- opportunity for sensitively designed medium density infill development in a contained area closer to the town centre, so as to provide more housing diversity and choice and to help reduce future pressure for urban development adjacent or close to Arrowtown's Urban Growth Boundary.
- a designed urban edge with landscaped gateways that promote or enhance the containment of the town within the landscape, where the development abuts the urban boundary for Arrowtown
- for Feehley's Hill and land along the margins of Bush Creek and the Arrow River to be retained as reserve areas as part of Arrowtown's recreation and amenity resource.
- To recognise the importance of the open space pattern that is created by the inter-connections between the golf courses and other Rural General land

Wanaka

4.2.6 Objective - Manage the scale and location of urban growth in the



Wanaka Urban Growth Boundary.

Policies

4.2.6.1 Limit the spatial growth of Wanaka so that:

- The rural character of key entrances to the town is retained and protected, as provided by the natural boundaries of the Clutha River and Cardrona River
- A distinction between urban and rural areas is maintained to protect the quality and character of the environment and visual amenity
- Ad hoc development of rural land is avoided
- Outstanding Natural Landscapes and Outstanding Natural Features are protected from encroachment by urban development

4.2.6.2 Ensure that development within the Wanaka Urban Growth Boundary:

- Supports increased density through greenfield and infill development, in appropriate locations, to avoid sprawling into surrounding rural areas
- Provides a sensitive transition to rural land at the edge of the Urban Growth Boundaries through the use of: appropriate zoning and density controls; setbacks to maintain amenity and open space; and design standards that limit the visual prominence of buildings
- Facilitates a diversity of housing supply to accommodate future growth in permanent residents and visitors
- Maximises the efficiency of existing infrastructure networks and avoids expansion of networks before it is needed for urban development
- Supports the coordinated planning for transport, public open space, walkways and cycleways and community facilities
- Does not diminish the qualities of significant landscape features
- Rural land outside of the Urban Growth Boundary is not developed until further investigations indicate that more land is needed to meet demand.

6 LANDSCAPES

6.1

Purpose

The purpose of this chapter is to recognise the landscape as a significant resource to the district and region. This resource requires protection from inappropriate activities that could degrade its qualities, character and values.

Landscapes have been categorised to provide certainty of their importance to the District, to align with regional and national legislation and to provide decision makers with a basis to consider the appropriateness of activities when having regard to the RMA. In particular, Outstanding Natural Features and Landscapes as matters of national importance.

6.2

Values

The District's landscapes are of significant value to the people who live in, work in or visit the District. The District relies in a large part for its social and economic wellbeing on the quality of the landscape, open spaces and environmental image.

The landscapes consist of a variety of landforms created by uplift and glaciations, which include mountains, ice-sculpted rock, scree slopes, moraine, fans, a variety of confined and braided river systems, valley floors and lake basins. These distinct landforms remain easily legible and strong features of the present landscape.

Indigenous vegetation also contributes to the quality of the District's landscapes. Whilst much of the original vegetation has been modified, the colour and texture of indigenous vegetation within these landforms contribute to the distinctive identity of the District's landscapes.

The open character of productive farmland is a key element of the landscape character which can be vulnerable to degradation from subdivision, development and non-farming activities. The prevalence of large farms and landholdings contributes to the open space and rural working character of the landscape. The predominance of open space over housing and related domestic elements is a strong determinant of the character of the District's rural landscapes.

Some rural areas, particularly those closer to Queenstown and Wanaka town centres and within parts of the Wakatipu Basin, have an established pattern of housing on smaller landholdings. The landscape character of these areas has been modified by vehicle accesses, earthworks and vegetation planting for amenity, screening and shelter, which have reduced the open character exhibited by larger scale farming activities.

While acknowledging these rural areas have established housing, a substantial amount of subdivision and development has been approved in these areas and the landscape values of these areas are vulnerable to degradation from further subdivision and development. It is realised that rural lifestyle development has a finite capacity if the District's distinctive rural landscape values are to be sustained.

The lakes and rivers both on their own and, when viewed as part of the distinctive landscape, are a significant element of the national and international identity of the District and provide for a wide range of amenity and recreational opportunities. They are nationally and internationally recognised as part of the reason for the District's importance as a visitor destination, as well as one of the reasons for residents to belong to the area. Managing the landscape and recreational values on the surface of lakes and rivers is an important District Plan function.

Landscapes have been categorised into three classifications within the Rural Zone. These are Outstanding Natural Landscapes (ONL) and Outstanding Natural Features (ONF), where their use, development and protection are a matter of national importance under Section 6 of the RMA. The Rural Landscapes Classification (RLC) makes up the remaining Rural Zoned land and has varying types of landscape character and amenity values. Specific policy and assessment matters are provided to manage the potential effects of subdivision and development in these locations.

6.3.1 **Objective - The District contains and values Outstanding Natural Features, Outstanding Natural Landscapes, and Rural Landscapes that require protection from inappropriate subdivision and development.**

Policies	<p>6.3.1.1 Identify the District's Outstanding Natural Landscapes and Outstanding Natural Features on the Planning Maps.</p> <p>6.3.1.2 Classify the Rural Zoned landscapes in the District as:</p> <ul style="list-style-type: none"> • Outstanding Natural Feature (ONF) • Outstanding Natural Landscape (ONL) • Rural Landscape Classification (RLC) <p>6.3.1.3 That subdivision and development proposals located within the Outstanding Natural Landscape, or an Outstanding Natural Feature, be assessed against the assessment matters in provisions 21.7.1 and 21.7.3 because subdivision and development is inappropriate in almost all locations, meaning successful applications will be exceptional cases.</p> <p>6.3.1.4 That subdivision and development proposals located within the Rural Landscape be assessed against the assessment matters in provisions 21.7.2 and 21.7.3 because subdivision and development is inappropriate in many locations in these landscapes, meaning successful applications will be, on balance, consistent with the assessment matters.</p> <p>6.3.1.5 Avoid urban subdivision and development in the Rural Zones.</p> <p>6.3.1.6 Enable rural lifestyle living through applying Rural Lifestyle Zone and Rural Residential Zone plan changes in areas where the landscape can accommodate change.</p> <p>6.3.1.7 When locating urban growth boundaries or extending urban settlements through plan changes, avoid impinging on Outstanding Natural Landscapes or Outstanding Natural Features and minimise disruption to the values derived from open rural landscapes.</p> <p>6.3.1.8 Ensure that the location and direction of lights does not cause glare to other properties, roads, and public places or the night sky.</p> <p>6.3.1.9 Ensure the District's distinctive landscapes are not degraded by forestry and timber harvesting activities.</p> <p>6.3.1.10 Recognise that low-intensity pastoral farming on large landholdings contributes to the District's landscape character.</p>
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6.3.1.11 Recognise the importance of protecting the landscape character and visual amenity values, particularly as viewed from public places.

6.3.1.12 Recognise and provide for the protection of Outstanding Natural Features and Landscapes with particular regard to values relating to cultural and historic elements, geological features and matters of cultural and spiritual value to Tangata Whenua, including Tōpuni.

6.3.2 Objective - Avoid adverse cumulative effects on landscape character and amenity values caused by incremental subdivision and development.

- Policies
- 6.3.2.1** Acknowledge that subdivision and development in the rural zones, specifically residential development, has a finite capacity if the District's landscape quality, character and amenity values are to be sustained.
 - 6.3.2.2** Allow residential subdivision and development only in locations where the District's landscape character and visual amenity would not be degraded.
 - 6.3.2.3** Recognise that proposals for residential subdivision or development in the Rural Zone that seek support from existing and consented subdivision or development have potential for adverse cumulative effects. Particularly where the subdivision and development would constitute sprawl along roads.
 - 6.3.2.4** Have particular regard to the potential adverse effects on landscape character and visual amenity values from infill within areas with existing rural lifestyle development or where further subdivision and development would constitute sprawl along roads.
 - 6.3.2.5** Ensure incremental changes from subdivision and development do not degrade landscape quality, character or openness as a result of activities associated with mitigation of the visual effects of proposed development such as screening planting, mounding and earthworks.

6.3.3 Objective - Protect, maintain or enhance the district's Outstanding Natural Features (ONF).

- Policies
- 6.3.3.1** Avoid subdivision and development on Outstanding Natural Features that does not protect, maintain or enhance Outstanding Natural Features.
 - 6.3.3.2** Ensure that subdivision and development in the Outstanding Natural Landscapes and Rural Landscapes adjacent to Outstanding Natural Features would not degrade the landscape quality, character and visual amenity of Outstanding Natural Features.

6.3.4 **Objective - Protect, maintain or enhance the District's Outstanding Natural Landscapes (ONL).**

- Policies
- 6.3.4.1** Avoid subdivision and development that would degrade the important qualities of the landscape character and amenity, particularly where there is no or little capacity to absorb change.
 - 6.3.4.2** Recognise that large parts of the District's Outstanding Natural Landscapes include working farms and accept that viable farming involves activities which may modify the landscape, providing the quality and character of the Outstanding Natural Landscape is not adversely affected.
 - 6.3.4.3** Have regard to adverse effects on landscape character, and visual amenity values as viewed from public places, with emphasis on views from formed roads.
 - 6.3.4.4** The landscape character and amenity values of the Outstanding Natural Landscape are a significant intrinsic, economic and recreational resource, such that large scale renewable electricity generation or new large scale mineral extraction development proposals including windfarm or hydro energy generation are not likely to be compatible with the Outstanding Natural Landscapes of the District.

6.3.5 **Objective - Ensure subdivision and development does not degrade landscape character and diminish visual amenity values of the Rural Landscapes (RLC).**

- Policies
- 6.3.5.1** Allow subdivision and development only where it will not degrade landscape quality or character, or diminish the visual amenity values identified for any Rural Landscape.
 - 6.3.5.2** Avoid adverse effects from subdivision and development that are:
 - Highly visible from public places and other places which are frequented by members of the public generally (except any trail as defined in this Plan); and
 - Visible from public roads.
 - 6.3.5.3** Avoid planting and screening, particularly along roads and boundaries, which would degrade openness where such openness is an important part of the landscape quality or character.
 - 6.3.5.4** Encourage any landscaping to be sustainable and consistent with the established character of the area.
 - 6.3.5.5** Encourage development to utilise shared accesses and infrastructure, to locate within the parts of the site where they will be least visible, and have the least disruption to the landform and rural character.
 - 6.3.5.6** Have regard to the adverse effects from subdivision and development on the open landscape character where it is open at present.

6.3.6 **Objective - Protect, maintain or enhance the landscape quality, character and visual amenity provided by the lakes and rivers and their margins from the adverse effects of structures and activities.**

- Policies
- 6.3.6.1** Control the location, intensity and scale of buildings, jetties, moorings and utility structures on the surface and margins of water bodies and ensure these structures maintain or enhance the landscape quality, character and amenity values.
 - 6.3.6.2** Recognise the character of the Frankton Arm including the established jetties and provide for these on the basis that the visual qualities of the District's distinctive landscapes are maintained and enhanced.
 - 6.3.6.3** Recognise the urban character of Queenstown Bay and provide for structures and facilities providing they protect, maintain or enhance the appreciation of the District's distinct landscapes.
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6.3.7 **Objective - Recognise and protect indigenous biodiversity where it contributes to the visual quality and distinctiveness of the District's landscapes.**

- Policies
- 6.3.7.1** Encourage subdivision and development proposals to promote indigenous biodiversity protection and regeneration where the landscape and nature conservation values would be maintained or enhanced, particularly where the subdivision or development constitutes a change in the intensity in the land use or the retirement of productive farm land.
 - 6.3.7.2** Avoid indigenous vegetation clearance where it would significantly degrade the visual character and qualities of the District's distinctive landscapes.
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6.3.8 **Objective - Recognise the dependence of tourism on the District's landscapes.**

- Policies
- 6.3.8.1** Acknowledge the contribution tourism infrastructure makes to the economic and recreational values of the District.
 - 6.3.8.2** Recognise that commercial recreation and tourism related activities locating within the rural zones may be appropriate where these activities enhance the appreciation of landscapes, and on the basis they would protect, maintain or enhance landscape quality, character and visual amenity values.
 - 6.3.8.3** Exclude identified Ski Area Sub Zones from the landscape categories and full assessment of the landscape provisions while controlling the impact of the ski field structures and activities on the wider environment.
 - 6.3.8.4** Provide a separate regulatory regime for the Gibbston Valley, identified as the Gibbston Character Zone, in recognition of its contribution to tourism and viticulture while controlling the impact of buildings, earthworks and non-viticulture related activities on the wider environment.

6.4.1 Application of the landscape provisions

- 6.4.1.1** The term 'subdivision and development' includes subdivision, identification of building platforms, any buildings and associated activities such as roading, earthworks, lighting, landscaping, planting and boundary fencing and access / gateway structures.
- 6.4.1.2** The landscape categories apply only to the Rural Zone. The Landscape Chapter and Strategic Direction Chapter's objectives and policies are relevant and applicable in all zones where landscape values are at issue.
- 6.4.1.3** The landscape categories do not apply to the following within the Rural Zones:
- a. Ski Area Activities within the Ski Area Sub Zones.
 - b. The area of the Frankton Arm located to the east of the Outstanding Natural Landscape line as shown on the District Plan maps.
 - c. The Gibbston Character Zone.
 - d. The Rural Lifestyle Zone.
 - e. The Rural Residential Zone.
- 6.4.1.4** The landscape categories apply to lakes and rivers. Except where otherwise stated or shown on the Planning Maps, lakes and rivers are categorised as outstanding natural landscapes.
- 6.4.1.5** Where a utility is to be located within the Rural Zone and requires resource consent as a discretionary activity, the objectives and policies of the landscape chapter are applicable.

21 RURAL



21.1

Zone Purpose

The purpose of the Rural zone is to enable farming activities while protecting, maintaining and enhancing landscape values, nature conservation values, the soil and water resource and rural amenity.

A wide range of productive activities occur in the Rural Zone and because the majority of the District's distinctive landscapes comprising open spaces, lakes and rivers with high visual quality and cultural value are located in the Rural Zone, there also exists the desire for rural living, recreation, commercial and tourism activities.

Ski Area sub zones are located within the Rural Zone. These sub zones recognise the contribution tourism infrastructure makes to the economic and recreational values of the District. The purpose of the Ski Area sub zones is to enable the continued development of Ski Area Activities within the identified sub zones where the effects of the development would be cumulatively minor.

In addition, the Rural Industrial Sub Zone includes established industrial activities that are based on rural resources or support farming and rural productive activities.

A substantial proportion of the Outstanding Natural Landscapes of the district comprises private land managed in traditional pastoral farming systems. Rural land values tend to be driven by the high landscape and amenity values in the district. The long term sustainability of pastoral farming will depend upon farmers being able to achieve economic returns from utilising the natural and physical resources of their properties. For this reason, it is important to acknowledge the potential for a range of alternative uses of farm properties that utilise the qualities that make them so valuable.

The Gibbston Valley is recognised as a Special Character Area for viticulture production and the management of this area is provided for in Chapter 23.

Pursuant to Section 86(b)(3) of the RMA, the following rules that protect or relate to water have immediate legal effect:

- **21.4.24 and all rules in Table 9: Activities on the surface of lakes and rivers.**
- **21.5.4: Setback of buildings from water bodies.**
- **21.5.7: Dairy farming grazing within the bed or margin of a water body.**
- **21.4.30 (b) and 21.4.32: Suction dredge mining.**

21.2

Objectives and Policies

21.2.1 **Objective - Enable farming, permitted and established activities while protecting, maintaining and enhancing landscape, ecosystem services, nature conservation and rural amenity values.**

- | | |
|----------|---|
| Policies | <p>21.2.1.1 Enable farming activities while protecting, maintaining and enhancing the values of indigenous biodiversity, ecosystem services, recreational values, the landscape and surface of lakes and rivers and their margins.</p> <p>21.2.1.2 Provide for Farm Buildings associated with larger landholdings where the location, scale and colour of the buildings will not adversely affect landscape values.</p> |
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- 21.2.1.3** Require buildings to be set back a minimum distance from internal boundaries and road boundaries in order to mitigate potential adverse effects on landscape character, visual amenity, outlook from neighbouring properties and to avoid adverse effects on established and anticipated activities.
- 21.2.1.4** Minimise the dust, visual, noise and odour effects of activities by requiring facilities to locate a greater distance from formed roads, neighbouring properties, waterbodies and zones that are likely to contain residential and commercial activity.
- 21.2.1.5** Have regard to the location and direction of lights so they do not cause glare to other properties, roads, public places or the night sky.
- 21.2.1.6** Avoid adverse cumulative impacts on ecosystem services and nature conservation values.
- 21.2.1.7** Have regard to the spiritual beliefs, cultural traditions and practices of Tangata Whenua.
- 21.2.1.8** Have regard to fire risk from vegetation and the potential risk to people and buildings, when assessing subdivision and development in the Rural Zone.

21.2.2 Objective - Sustain the life supporting capacity of soils.

- Policies
- 21.2.2.1** Allow for the establishment of a range of activities that utilise the soil resource in a sustainable manner.
 - 21.2.2.2** Maintain the productive potential and soil resource of Rural Zoned land and encourage land management practices and activities that benefit soil and vegetation cover.
 - 21.2.2.3** Protect the soil resource by controlling activities including earthworks, indigenous vegetation clearance and prohibit the planting and establishment of recognised wilding exotic trees with the potential to spread and naturalise.

21.2.3 Objective - Safeguard the life supporting capacity of water through the integrated management of the effects of activities.

- 21.2.3.1** In conjunction with the Otago Regional Council, regional plans and strategies:
 - Encourage activities that use water efficiently, thereby conserving water quality and quantity;
 - Discourage activities that adversely affect the potable quality and life supporting capacity of water and associated ecosystems.

21.2.4 Objective - Manage situations where sensitive activities conflict with existing and anticipated activities in the Rural Zone.

- Policies
- 21.2.4.1** Recognise that permitted and established activities in the Rural Zone may result in effects such as odour, noise, dust and traffic generation that are reasonably expected to occur and will be noticeable to residents and visitors in rural areas.
 - 21.2.4.2** Control the location and type of non-farming activities in the Rural Zone, to minimise or avoid conflict with activities that may not be compatible with permitted or established activities.
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21.2.5 Objective - Recognise for and provide opportunities for mineral extraction providing the location, scale and effects would not degrade amenity, water, landscape and indigenous biodiversity values.

- Policies
- 21.2.5.1** Recognise the importance and economic value of locally sourced high-quality gravel, rock and other minerals for road making and construction activities.
 - 21.2.5.2** Recognise prospecting and small scale recreational gold mining as activities with limited environmental impact.
 - 21.2.5.3** Ensure that during and following the conclusion of mineral extractive activities, sites are progressively rehabilitated in a planned and co-ordinated manner, to enable the establishment of a land use appropriate to the area.
 - 21.2.5.4** Ensure potential adverse effects of large-scale extractive activities (including mineral exploration) are avoided or remedied, particularly where those activities have potential to degrade landscape quality, character and visual amenity, indigenous biodiversity, lakes and rivers, potable water quality and the life supporting capacity of water.
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21.2.6 Objective - Encourage the future growth, development and consolidation of existing Ski Areas within identified Sub Zones, while avoiding, remedying or mitigating adverse effects on the environment.

- Policies
- 21.2.6.1** Identify Ski Field Sub Zones and encourage Ski Area Activities to locate and consolidate within the sub zones.
 - 21.2.6.2** Control the visual impact of roads, buildings and infrastructure associated with Ski Area Activities.
 - 21.2.6.3** Provide for the continuation of existing vehicle testing facilities within the Waiorau Snow Farm Ski Area Sub Zone on the basis the landscape and indigenous biodiversity values are not further degraded.

21.2.7 **Objective - Separate activities sensitive to aircraft noise from existing airports through:**

- **The retention of an undeveloped open area; or**
- **at Queenstown Airport an area for Airport related activities; or**
- **where appropriate an area for activities not sensitive to aircraft noise;**

within an airport's Outer Control Boundary to act as a buffer between airports and other land use activities.

Policies	<p>21.2.7.1 Prohibit all new activity sensitive to aircraft noise on any Rural Zoned land within the Outer Control Boundary at Wanaka Airport and Queenstown Airport to avoid adverse effects arising from aircraft operations on future activities sensitive to aircraft noise.</p> <p>21.2.7.2 Identify and maintain areas containing activities that are not sensitive to aircraft noise, within an airport's outer control boundary, to act as a buffer between the airport and activities sensitive to aircraft noise.</p> <p>21.2.7.3 Retain open space within the outer control boundary of airports in order to provide a buffer, particularly for safety and noise purposes, between the airport and other activities.</p> <p>21.2.7.4 Require as necessary mechanical ventilation for any alterations or additions to Critical Listening Environment within any existing buildings containing an Activity Sensitive to Aircraft Noise within the Queenstown Airport Outer Control Boundary and require sound insulation and mechanical ventilation for any alterations or additions to Critical Listening Environment within any existing buildings containing an Activity Sensitive to Aircraft Noise within the Queenstown Airport Air Noise Boundary.</p>
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21.2.8 **Objective - Avoid subdivision and development in areas that are identified as being unsuitable for development.**

Policies	<p>21.2.8.1 Assess subdivision and development proposals against the applicable District Wide chapters, in particular, the objectives and policies of the Natural Hazards and Landscape chapters.</p> <p>21.2.8.2 Prevent subdivision and development within the building restriction areas identified on the District Plan maps, in particular:</p> <ol style="list-style-type: none"> a. In the Glenorchy area, protect the heritage value of the visually sensitive Bible Face landform from building and development and to maintain the rural backdrop that the Bible Face provides to the Glenorchy Township. b. In Ferry Hill, within the building line restriction identified on the planning maps.
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21.2.9 Objective - Ensure commercial activities do not degrade landscape values, rural amenity, or impinge on farming activities.

- Policies
- 21.2.9.1** Commercial activities in the Rural Zone should have a genuine link with the rural land resource, farming, horticulture or viticulture activities, or recreation activities associated with resources located within the Rural Zone.
 - 21.2.9.2** Avoid the establishment of commercial, retail and industrial activities where they would degrade rural quality or character, amenity values and landscape values.
 - 21.2.9.3** Encourage forestry to be consistent with topography and vegetation patterns, to locate outside of the Outstanding Natural Features and Landscapes, and ensure forestry does not degrade the landscape character or visual amenity values of the Rural Landscape.
 - 21.2.9.4** Ensure forestry harvesting avoids adverse effects with regards to siltation and erosion and sites are rehabilitated to minimise runoff, erosion and effects on landscape values.
 - 21.2.9.5** Limit forestry to species that do not have any potential to spread and naturalise.
 - 21.2.9.6** Ensure traffic from commercial activities does not diminish rural amenity or affect the safe and efficient operation of the roading and trail network, or access to public places.
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21.2.10 Objective - Recognise the potential for diversification of farms that utilises the natural or physical resources of farms and supports the sustainability of farming activities.

- 21.2.10.1** Encourage revenue producing activities that can support the long term sustainability of farms in the district.
 - 21.2.10.2** Ensure that revenue producing activities utilise natural and physical resources (including buildings) in a way that maintains and enhances landscape quality, character, rural amenity, and natural values.
 - 21.2.10.3** Recognise that the establishment of complementary activities such as commercial recreation or visitor accommodation located within farms may enable landscape values to be sustained in the longer term. Such positive effects should be taken into account in the assessment of any resource consent applications.
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21.2.11 Objective - Manage the location, scale and intensity of informal airports.

- Policies
- 21.2.11.1** Recognise that informal airports are an appropriate activity within the rural environment, provided the informal airport is located, operated and managed so as to minimise adverse effects on the surrounding rural amenity.

21.2.11.2 Protect rural amenity values, and amenity of other zones from the adverse effects that can arise from informal airports.

21.2.12 Objective - Protect, maintain or enhance the surface of lakes and rivers and their margins.

- Policies
- 21.2.12.1** Have regard to statutory obligations, the spiritual beliefs, cultural traditions and practices of Tangata Whenua where activities are undertaken on the surface of lakes and rivers and their margins.
 - 21.2.12.2** Enable people to have access to a wide range of recreational experiences on the lakes and rivers, based on the identified characteristics and environmental limits of the various parts of each lake and river.
 - 21.2.12.3** Avoid or mitigate the adverse effects of frequent, large-scale or intrusive commercial activities such as those with high levels of noise, vibration, speed and wash, in particular motorised craft in areas of high passive recreational use, significant nature conservation values and wildlife habitat.
 - 21.2.12.4** Recognise the whitewater values of the District's rivers and, in particular, the values of the Kawarau and Shotover Rivers as two of the few remaining major unmodified whitewater rivers in New Zealand, and to support measures to protect this characteristic of rivers.
 - 21.2.12.5** Protect, maintain or enhance the natural character and nature conservation values of lakes, rivers and their margins, with particular regard to places with nesting and spawning areas, the intrinsic value of ecosystem services and areas of indigenous fauna habitat and recreational values.
 - 21.2.12.6** Recognise and provide for the maintenance and enhancement of public access to and enjoyment of the margins of the lakes and rivers.
 - 21.2.12.7** Ensure that the location, design and use of structures and facilities are such that any adverse effects on visual qualities, safety and conflicts with recreational and other activities on the lakes and rivers are avoided or mitigated.
 - 21.2.12.8** Encourage the development and use of marinas in a way that avoids or, where necessary, remedies and mitigates adverse effects on the environment.
 - 21.2.12.9** Take into account the potential adverse effects on nature conservation values from the boat wake of commercial boating activities, having specific regard to the intensity and nature of commercial jet boat activities and the potential for turbidity and erosion.
 - 21.2.12.10** Ensure that the nature, scale and number of commercial boating operators and/or commercial boats on waterbodies do not exceed levels where the safety of passengers and other users of the water body cannot be assured.

21.2.13 Objective - Enable rural industrial activities within the Rural Industrial Sub Zones, that support farming and rural productive activities, while protecting, maintaining and enhancing rural character, amenity and landscape values.

- Policies
- 21.2.13.1** Provide for rural industrial activities and buildings within established nodes of industrial development while protecting, maintaining and enhancing landscape and amenity values.
 - 21.2.13.2** Provide for limited retail and administrative activities within the Rural Industrial Sub Zone on the basis it is directly associated with and ancillary to the Rural Industrial Activity on the site.

21.3

Other Provisions and Rules

21.3.1 District Wide

Attention is drawn to the following District Wide chapters. All provisions referred to are within Stage 1 of the Proposed District Plan, unless marked as Operative District Plan (ODP).

1 Introduction	2 Definitions	3 Strategic Direction
4 Urban Development	5 Tangata Whenua	6 Landscapes
24 Signs (18 ODP)	25 Earthworks (22 ODP)	26 Historic Heritage
27 Subdivision	28 Natural Hazards	29 Transport (14 ODP)
30 Energy and Utilities	31 Hazardous Substances (16 ODP)	32 Protected Trees
33 Indigenous Vegetation and Biodiversity	34 Wilding Exotic Trees	35 Temporary Activities and Relocated Buildings
36 Noise	37 Designations	Planning Maps

21.3.2 Regional Council Provisions

- 21.3.2.1** In addition to any rules for mining, the Otago Regional Plan: Water, also has rules related to suction dredge mining.

21.3.3 Clarification

- 21.3.3.1** A permitted activity must comply with all the rules listed in the activity and standards tables, and any relevant district wide rules.

- 21.3.3.2** Where an activity does not comply with a standard listed in the standards tables, the activity status identified by the 'Non-Compliance Status' column shall apply. Where an activity breaches more than one Standard, the most restrictive status shall apply to the Activity.
- 21.3.3.3** Compliance with any of the following standards, in particular the permitted standards, does not absolve any commitment to the conditions of any relevant resource consent, consent notice or covenant registered on the site's computer freehold register.
- 21.3.3.4** The Council reserves the right to ensure development and building activities are undertaken in accordance with the conditions of resource consent through monitoring.
- 21.3.3.5** Applications for building consent for permitted activities shall include information to demonstrate compliance with the following standards, and any conditions of the applicable resource consent conditions.
- 21.3.3.6** For controlled and restricted discretionary activities, the Council shall restrict the exercise of its discretion to the matters listed in the rule.
- 21.3.3.7** The existence of a farm building either permitted or approved by resource consent under Table 4 - Farm Buildings shall not be considered the permitted baseline for residential or other non-farming activity development within the Rural Zone.
- 21.3.3.8** The Ski Area and Rural Industrial Sub Zones, being Sub Zones of the Rural Zone, require that all rules applicable to the Rural Zone apply unless stated to the contrary.
- 21.3.3.9** Ground floor area means any areas covered by the building or parts of the buildings and includes overhanging or cantilevered parts but does not include pergolas (unroofed), projections not greater than 800mm including eaves, bay or box windows, and uncovered terraces or decks less than 1m above ground level.
- 21.3.3.10** Building platforms identified on a site's computer freehold register shall have been registered as part of a resource consent approval by the Council.
- 21.3.3.11** These abbreviations are used in the following tables. Any activity which is not permitted (P) or prohibited (PR) requires resource consent.

P	Permitted	C	Controlled	RD	Restricted Discretionary
D	Discretionary	NC	Non Complying	PR	Prohibited

21.4

Rules - Activities

All activities, including any listed permitted activities shall be subject to the rules and standards contained in Tables 1 to 10.

Table 1 –Activities

Table 2 – Standards for all Activities

Table 3 – Structures and Buildings

Table 4 – Farm Buildings

Table 5 – Commercial Activities

Table 6 – Informal Airports

Table 7 – Ski Area Sub Zone

Table 8 – Rural Industrial Sub Zone

Table 9 – Surface of Lakes and Rivers

Table 10 – Closeburn Station

Table 1	Activities - Rural Zone	Activity Status
21.4.1	Any activity not listed in tables 1 to 10.	NC
	Farming Activities	
21.4.2	Farming Activity that complies with the standards in Table 2.	P
21.4.3	Construction or addition to farm buildings that comply with the standards in Table 4.	P
21.4.4	Factory Farming that complies with the standards in Table 2.	P
	Residential Activities, Subdivision and Development	
21.4.5	The use of land or buildings for residential activity except as provided for in any other rule.	D
21.4.6	One residential unit within any building platform approved by resource consent.	P
21.4.7	The construction and exterior alteration of buildings located within a building platform approved by resource consent, or registered on the applicable computer freehold register, subject to compliance with the standards in Table 3.	P
21.4.8	The exterior alteration of any lawfully established building located outside of a building platform, subject to compliance with the standards in Table 3.	P
21.4.9	The identification of a building platform not less than 70m ² and not greater than 1000m ² .	D
21.4.10	The construction of any building including the physical activity associated with buildings including roading, access, lighting, landscaping and earthworks, not provided for by any other rule.	D
21.4.11	Domestic Livestock.	P
21.4.12	Residential Flat (activity only, the specific rules for the construction of any buildings apply).	P
	Commercial Activities	
21.4.13	Home Occupation that complies with the standards in Table 5.	P

Table 1	Activities - Rural Zone	Activity Status
21.4.14	<p>Retail sales of farm and garden produce and wine grown, reared or produced on-site or handicrafts produced on the site and that comply with the standards in Table 5.</p> <p>Except roadside stalls that meet the following shall be a permitted activity:</p> <ol style="list-style-type: none"> the ground floor area is less than 5m²; are not higher than 2.0m from ground level; the minimum sight distance from the stall/access shall be 200m; the minimum distance of the stall/access from an intersection shall be 100m; and, the stall shall not be located on the legal road reserve. <p>Control is reserved to all of the following:</p> <ul style="list-style-type: none"> The location of the activity and buildings. Vehicle crossing location, car parking. Rural amenity and landscape character. 	C
21.4.15	Commercial activities ancillary to and located on the same site as recreational activities.	D
21.4.16	Commercial recreation activities that comply with the standards in Table 5.	P
21.4.17	Cafes and restaurants located in a winery complex within a vineyard.	D
21.4.18	Ski Area Activities within the Ski Area Sub Zone.	P
21.4.19	Ski Area Activities not located within a Ski Area Sub Zone, with the exception of heli-skiing and non-commercial skiing.	NC
21.4.20	Visitor Accommodation.	D
21.4.21	Forestry Activities in Rural Landscapes.	D
21.4.22	Retail activities within the Rural Industrial Sub Zone that involve the sale of goods produced, processed or manufactured on site or ancillary to Rural Industrial activities that comply with Table 8.	P
21.4.23	Administrative offices ancillary to and located on the same site as Rural Industrial activities being undertaken within the Rural Industrial Sub Zone that comply with Table 8.	P
	Other Activities	
21.4.24	Activities on the surface of lakes and rivers that comply with Table 9.	P
21.4.25	Informal Airports that comply with Table 6.	P
21.4.26	Any building within a Building Restriction Area identified on the Planning Maps.	NC
21.4.27	Recreation and/or Recreational Activity.	P
	Activities within the Outer Control Boundary at Queenstown Airport and Wanaka Airport	
21.4.28	<p>New Building Platforms and Activities within the Outer Control Boundary - Wanaka Airport</p> <p>On any site located within the Outer Control Boundary, any new activity sensitive to aircraft noise or new building platform to be used for an activity sensitive to aircraft noise (except an activity sensitive to aircraft noise located on a building platform approved before 20 October 2010).</p>	PR

Table 1	Activities - Rural Zone	Activity Status
21.4.29	Activities within the Outer Control Boundary - Queenstown Airport On any site located within the Outer Control Boundary, which includes the Air Noise Boundary, as indicated on the District Plan Maps, any new Activity Sensitive to Aircraft Noise.	PR
	Mining Activities	
21.4.30	The following mining and extraction activities are permitted: a. Mineral prospecting. b. Mining by means of hand-held, non-motorised equipment and suction dredging, where the total motive power of any dredge does not exceed 10 horsepower (7.5 kilowatt); and c. The mining of aggregate for farming activities provided the total volume does not exceed 1000m ³ in any one year. d. The activity will not be undertaken on an Outstanding Natural Feature.	P
21.4.31	Mineral exploration that does not involve more than 20m ³ in volume in any one hectare Control is reserved to all of the following: <ul style="list-style-type: none"> The adverse effects on landscape, nature conservation values and water quality. Rehabilitation of the site is completed that ensures: <ul style="list-style-type: none"> the long term stability of the site. that the landforms or vegetation on finished areas are visually integrated into the landscape. water quality is maintained. that the land is returned to its original productive capacity. 	C
21.4.32	Any mining activity other than provided for in rules 21.4.30 and 21.4.31.	D
	Industrial Activities	
21.4.33	Rural Industrial Activities within a Rural Industrial Sub-Zone that comply with Table 8.	P
21.4.34	Buildings for Rural Industrial Activities that comply with Table 8.	P
21.4.35	Industrial Activities directly associated with wineries and underground cellars within a vineyard.	D
21.4.36	Other Industrial Activities.	NC

21.5

Rules - Standards

Table 2	General Standards The following standards apply to any of the activities described in Tables 1 to 10 in addition to the specific table (Tables 3-10) unless otherwise stated.	Non-compliance Status
21.5.1	<p>Setback from Internal Boundaries</p> <p>The minimum setback of any building from internal boundaries shall be 15m.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Rural Amenity and landscape character. • Privacy, outlook and amenity from adjoining properties. <p>Except this rule shall not apply within the Rural Industrial Sub Zone. Refer to Table 8.</p>	RD
21.5.2	<p>Setback from Roads</p> <p>The minimum setback of any building from a road boundary shall be 20m, except, the minimum of any building setback from State Highway 6 between Lake Hayes and Frankton shall be 50m. The minimum setback of any building for other sections of State Highway 6 where the speed limit is 70 km/hr or greater shall be 40m.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Rural Amenity and landscape character. • Open space. • The adverse effects on the proposed activity from noise, glare and vibration from the established road. 	RD
21.5.3	<p>Setback from Neighbours of Buildings Housing Animals</p> <p>The minimum setback from internal boundaries for any building housing animals shall be 30m.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Odour. • Noise. • Dust. • Vehicle movements. 	RD

Table 2	General Standards The following standards apply to any of the activities described in Tables 1 to 10 in addition to the specific table (Tables 3-10) unless otherwise stated.	Non-compliance Status
21.5.4	<p>Setback of buildings from Water bodies</p> <p>The minimum setback of any building from the bed of a wetland, river or lake shall be 20m.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Indigenous biodiversity values. • Visual amenity values. • Landscape and natural character. • Open space. • Whether the waterbody is subject to flooding or natural hazards and any mitigation to manage the adverse effects of the location of the building. 	RD
21.5.5	<p>Dairy Farming (Milking Herds, Dry Grazing and Calf Rearing)</p> <p>All effluent holding tanks, effluent treatment and effluent storage ponds, shall be located at least 300 metres from any formed road or adjoining property.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Odour. • Visual prominence. • Landscape character. • Effects on surrounding properties. 	RD
21.5.6	<p>Dairy Farming (Milking Herds, Dry Grazing and Calf Rearing)</p> <p>All milking sheds or buildings used to house or feed milking stock shall be located at least 300 metres from any adjoining property or formed road.</p>	D
21.5.7	<p>Dairy Farming (Milking Herds, Dry Grazing and Calf Rearing)</p> <p>Stock shall be prohibited from standing in the bed of, or on the margin of a water body.</p> <p>For the purposes of this rule:</p> <ul style="list-style-type: none"> • Margin means land within 3.0 metres from the edge of the bed. • Water body has the same meaning as in the RMA, and also includes any drain or water race that goes to a lake or river. 	PR
21.5.8	<p>Factory Farming (excluding the boarding of animals)</p> <p>Factory farming within 2 kilometres of a Residential, Rural Residential, Rural Lifestyle, Township, Rural Visitor, Town Centre, Local Shopping Centre or Resort Zone.</p>	D

Table 2	General Standards The following standards apply to any of the activities described in Tables 1 to 10 in addition to the specific table (Tables 3-10) unless otherwise stated.	Non-compliance Status
21.5.9	<p>Factory Farming</p> <p>Factory farming of pigs where:</p> <p>21.5.9.1 the number of housed pigs exceeds 50 sows or 500 pigs of mixed ages; and/or</p> <p>21.5.9.2 any housed pigs are closer than 500m to a property boundary; and/or</p> <p>21.5.9.3 the number of outdoor pigs exceeds 100 pigs and their progeny up to weaner stage; and/or</p> <p>21.5.9.4 outdoor sows are not ringed at all times; and/or</p> <p>21.5.9.5 the stocking rate of outdoor pigs exceeds 15 pigs per hectare, excluding progeny up to weaner stage.</p>	NC
21.5.10	<p>Factory farming of poultry where:</p> <p>21.5.10.1 the number of birds exceeds 10,000 birds; and/or</p> <p>21.5.10.2 birds are housed closer than 300m to a site boundary.</p>	NC
21.5.11	Any factory farming activity other than factory farming of pigs or poultry.	NC
21.5.12	<p>Airport Noise – Wanaka Airport</p> <p>Alterations or additions to existing buildings, or construction of a building on a building platform approved before 20 October 2010 within the Outer Control Boundary, shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2036 noise contours, at the same time as meeting the ventilation requirements in Table 5, Chapter 36. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by installation of mechanical ventilation to achieve the requirements in Table 5, Chapter 36.</p>	NC
21.5.13	<p>Airport Noise – Queenstown Airport</p> <p>(a) Within the Queenstown Airport Air Noise Boundary (ANB) - Alterations and additions to existing buildings containing an Activity Sensitive to Aircraft Noise shall be designed to achieve an Indoor Design Sound Level of 40 dB Ldn, within any Critical Listening Environment, based on the 2037 Noise Contours. Compliance shall be demonstrated by either adhering to the sound insulation requirements in Table 4 of Chapter 36 and installation of mechanical ventilation to achieve the requirements in Table 5 of Chapter 36, or by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the Indoor Design Sound Level with the windows open.</p> <p>(b) Between the Queenstown Airport Outer Control Boundary (OCB) and the ANB – Alterations and additions to existing buildings containing an Activity Sensitive to Aircraft Noise shall be designed to achieve an Indoor Design Sound Level of 40 dB Ldn within any Critical Listening Environment, based on the 2037 Noise Contours. Compliance shall be demonstrated by either installation of mechanical ventilation to achieve the requirements in Table 5 of Chapter 36 or by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the Indoor Design Sound Level with the windows open.</p> <p>(c) Standards (a) and (b) exclude any alterations or additions to any non-critical listening environment.</p>	NC

Table 3	Standards for Structures and Buildings The following standards apply to structures and buildings, except Farm Buildings.	Non-compliance Status
21.5.14	<p>Structures</p> <p>Any structure within 10 metres of a road boundary, which is greater than 5 metres in length, and between 1 metre and 2 metres in height, except for:</p> <p>21.5.14.1 post and rail, post and wire and post and mesh fences, including deer fences;</p> <p>21.5.14.2 any structure associated with farming activities as defined in this plan.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Effects on landscape character, views and amenity, particularly from public roads. • The materials used, including their colour, reflectivity and permeability. • Whether the structure will be consistent with traditional rural elements. 	RD
21.5.15	<p>Buildings</p> <p>Any building, including any structure larger than 5m², that is new, relocated, altered, reclad or repainted, including containers intended to, or that remain on site for more than six months, and the alteration to any lawfully established building are subject to the following:</p> <p>All exterior surfaces shall be coloured in the range of browns, greens or greys (except soffits), including;</p> <p>21.5.15.1 Pre-painted steel and all roofs shall have a reflectance value not greater than 20%; and,</p> <p>21.5.15.2 All other surface finishes shall have a reflectance value of not greater than 30%.</p> <p>21.5.15.3 In the case of alterations to an existing building not located within a building platform, it does not increase the ground floor area by more than 30% in any ten year period.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • External appearance. • Visual prominence from both public places and private locations. • Landscape character. • Visual amenity. 	RD
21.5.16	<p>Building size</p> <p>The maximum ground floor area of any building shall be 500m².</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • External appearance. • Visual prominence from both public places and private locations. • Landscape character. • Visual amenity. • Privacy, outlook and amenity from adjoining properties. 	RD

Table 3	Standards for Structures and Buildings	Non-compliance Status
21.5.17	<p>The following standards apply to structures and buildings, except Farm Buildings.</p> <p>Building Height</p> <p>The maximum height shall be 8m.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Rural Amenity and landscape character. • Privacy, outlook and amenity from adjoining properties. • Visual prominence from both public places and private locations. 	RD

Table 4	Standards for Farm Buildings	Non-compliance Status
21.5.18	<p>The following standards apply to Farm Buildings.</p> <p>The construction, replacement or extension of a farm building as a permitted activity is subject to the following:</p> <p>21.5.18.1 The landholding is greater than 100ha; and</p> <p>21.5.18.2 The density of all buildings on the site, inclusive of the proposed building(s) will be less than one farm building per 25 hectares on the site; and</p> <p>21.5.18.3 Is not located within an Outstanding Natural Feature (ONF); and</p> <p>21.5.18.4 If located within the Outstanding Natural Landscapes (ONL) is less than 4 metres in height and the ground floor area is not greater than 100m²; and</p> <p>21.5.18.5 Is less than 600 masl; and</p> <p>21.5.18.6 If located within the Rural Landscapes (RLC), is less than 5m in height and the ground floor area is not greater than 300m²; and</p> <p>21.5.18.7 Buildings shall not protrude onto a skyline or above a terrace edge when viewed from adjoining sites, or formed roads within 2km of the location of the proposed building.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Rural Amenity values. • Landscape character. • Privacy, outlook and rural amenity from adjoining properties. • Visibility, including lighting. • Scale. • Location. 	RD

Table 4	Standards for Farm Buildings The following standards apply to Farm Buildings.	Non-compliance Status
21.5.19	<p>Exterior colours of buildings:</p> <p>21.5.19.1 All exterior surfaces shall be coloured in the range of browns, greens or greys (except soffits).</p> <p>21.5.19.2 Pre-painted steel, and all roofs shall have a reflectance value not greater than 20%.</p> <p>21.5.19.3 Surface finishes shall have a reflectance value of not greater than 30%.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • External appearance. • Visual prominence from both public places and private locations. • Landscape character. • Visual amenity. 	RD
21.5.20	<p>Building Height</p> <p>The maximum height for any farm building shall be 10m.</p> <p>Discretion is restricted to:</p> <ul style="list-style-type: none"> • Rural amenity values. • Landscape character. • Privacy, outlook and amenity from adjoining properties. 	D

Table 5	Standards for Commercial Activities	Non-compliance Status
21.5.21	Commercial recreation activity undertaken on land, outdoors and involving not more than 10 persons in any one group.	D
21.5.22	<p>Home Occupation</p> <p>21.5.22.1 The maximum net floor area of home occupation activities shall be 150m²;</p> <p>21.5.22.2 No goods materials or equipment shall be stored outside a building;</p> <p>21.5.22.3 All manufacturing, altering, repairing, dismantling or processing of any goods or articles shall be carried out within a building.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • The nature, scale and intensity of the activity in the context of the surrounding rural area. • Visual amenity from neighbouring properties and public places. • Noise, odour and dust. • The extent to which the activity requires a rural location because of its link to any rural resource in the Rural Zone. • Access safety and transportation effects. 	RD

Table 5	Standards for Commercial Activities	Non-compliance Status
21.5.23	<p>Retail Sales</p> <p>Buildings in excess of 25m² gross floor area to be used for retail sales identified in Table 1 shall be setback from road boundaries by a minimum distance of 30m.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Landscape character and visual amenity. • Access safety and transportation effects. • On-site parking. 	RD
21.5.24	<p>Retail Sales</p> <p>Retail sales where the access is onto a State Highway, with the exception of the activities listed in Table 1.</p>	NC

Table 6	Standards for Informal Airports	Non-compliance Status
21.5.25	<p>Informal Airports Located on Public Conservation and Crown Pastoral Land</p> <p>Informal airports that comply with the following standards shall be permitted activities:</p> <p>21.5.25.1 Informal airports located on Public Conservation Land where the operator of the aircraft is operating in accordance with a Concession issued pursuant to Section 17 of the Conservation Act 1987;</p> <p>21.5.25.2 Informal airports located on Crown Pastoral Land where the operator of the aircraft is operating in accordance with a Recreation Permit issued pursuant to Section 66A of the Land Act 1948;</p> <p>21.5.25.3 Informal airports for emergency landings, rescues, fire-fighting and activities ancillary to farming activities;</p> <p>21.5.25.4 In relation to points (21.5.25.1) and (21.5.25.2), the informal airport shall be located a minimum distance of 500 metres from any formed legal road or the notional boundary of any residential unit or approved building platform not located on the same site.</p>	D
21.5.26	<p>Informal Airports Located on other Rural Zoned Land</p> <p>Informal Airports that comply with the following standards shall be permitted activities:</p> <p>21.5.26.1 Informal airports on any site that do not exceed a frequency of use of 3 flights* per week;</p> <p>21.5.26.2 Informal airports for emergency landings, rescues, fire-fighting and activities ancillary to farming activities;</p> <p>21.5.26.3 In relation to point (21.5.26.1), the informal airport shall be located a minimum distance of 500 metres from any formed legal road or the notional boundary of any residential unit of building platform not located on the same site.</p> <p><i>* note for the purposes of this Rule a flight includes two aircraft movements i.e. an arrival and departure.</i></p>	D

Table 7	Standards for Ski Area Activities within the Ski Area Sub Zones	Non-compliance Status
21.5.27	<p>Construction, relocation, addition or alteration of a building.</p> <p>Control is reserved to all of the following:</p> <ul style="list-style-type: none"> • Location, external appearance and size, colour, visual dominance. • Associated earthworks, access and landscaping. • Provision of water supply, sewage treatment and disposal, electricity and communication services (where necessary). • Lighting. 	C
21.5.28	<p>Ski tows and lifts.</p> <p>Control is reserved to all of the following:</p> <ul style="list-style-type: none"> • The extent to which the ski tow or lift or building breaks the line and form of the landscape with special regard to skylines, ridges, hills and prominent slopes. • Whether the materials and colour to be used are consistent with the rural landscape of which the tow or lift or building will form a part. • Balancing environmental considerations with operational characteristics. 	C
21.5.29	<p>Night lighting.</p> <p>Control is reserved to all of the following:</p> <ul style="list-style-type: none"> • Hours of operation. • Duration and intensity. • Impact on surrounding properties. 	C
21.5.30	<p>Vehicle Testing.</p> <p>In the Waiorau Snow Farm Ski Area Activity Sub Zone; the construction of access ways and tracks associated with the testing of vehicles, their parts and accessories.</p> <p>Control is reserved to all of the following:</p> <ul style="list-style-type: none"> • Gravel and silt run off. • Stormwater, erosion and siltation. • The sprawl of tracks and the extent to which earthworks modify the landform. • Stability of over-steepened embankments. 	C

Table 7	Standards for Ski Area Activities within the Ski Area Sub Zones	Non-compliance Status
21.5.31	<p>Retail activities ancillary to Ski Area Activities.</p> <p>Control is reserved to all of the following:</p> <ul style="list-style-type: none"> • Location. • Hours of operation with regard to consistency with ski-area activities. • Amenity effects, including loss of remoteness or isolation. • Traffic congestion, access and safety. • Waste disposal. • Cumulative effects. 	C

Table 8	Standards for Activites within the Rural Industrial Sub Zone	Non-compliance Status
21.5.32	<p>Buildings</p> <p>Any building, including any structure larger than 5m², that is new, relocated, altered, reclad or repainted, including containers intended to, or that remain on site for more than six months, and the alteration to any lawfully established building are subject to the following:</p> <p>All exterior surfaces shall be coloured in the range of browns, greens or greys (except soffits), including;</p> <p>21.5.32.1 Pre-painted steel and all roofs shall have a reflectance value not greater than 20%; and,</p> <p>21.5.32.2 All other surface finishes shall have a reflectance value of not greater than 30%.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • External appearance. • Visual prominence from both public places and private locations. • Landscape character. • Visual amenity. 	RD
21.5.33	<p>Building size</p> <p>The maximum ground floor area of any building shall be 500m².</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • External appearance. • Visual prominence from both public places and private locations. • Visual amenity. • Privacy, outlook and amenity from adjoining properties. 	RD

Table 8	Standards for Activities within the Rural Industrial Sub Zone	Non-compliance Status
21.5.34	<p>Building Height</p> <p>The maximum height for any industrial building shall be 10m.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • rural amenity and landscape character. • privacy, outlook and amenity from adjoining properties. 	RD
21.5.35	<p>Setback from Sub Zone Boundaries</p> <p>The minimum setback of any building within the Rural Industrial Sub Zone shall be 10m from the Sub Zone boundaries.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • The requirement for landscaping to act as a buffer between the Rural Industrial Sub-Zone and neighbouring properties and whether there is adequate room for landscaping within the reduced setback. • Rural amenity and landscape character. • Privacy, outlook and amenity from adjoining properties. 	RD
21.5.36	<p>Retail Activities</p> <p>Retail activities including the display of items for sale shall be undertaken within a building and shall not exceed 10% of the building's total floor area.</p>	NC
21.5.37	<p>Lighting and Glare</p> <p>21.5.37.1 All fixed exterior lighting shall be directed away from adjoining sites and roads; and</p> <p>21.5.37.2 No activity on any site shall result in greater than a 3.0 lux spill (horizontal and vertical) of light onto any other site measured at any point inside the boundary of the other site, provided that this rule shall not apply where it can be demonstrated that the design of adjacent buildings adequately mitigates such effects.</p> <p>21.5.37.3 There shall be no upward light spill.</p>	NC

Table 9	Activities and Standards for Activities on the Surface of Lakes and Rivers	Activity Status
21.5.38	<p>Jetboat Race Events</p> <p>Jetboat Race Events on the Clutha River, between the Lake Outlet boat ramp and the Albert Town road bridge not exceeding 6 race days in any calendar year.</p> <p>Control is reserved to all of the following:</p> <ul style="list-style-type: none"> • The date, time, duration and scale of the jetboat race event, including its proximity to other such events, such as to avoid or mitigate adverse effects on residential and recreational activities in the vicinity. • Adequate public notice is given of the holding of the event. • Reasonable levels of public safety are maintained. 	C

Table 9	Activities and Standards for Activities on the Surface of Lakes and Rivers	Activity Status
21.5.39	<p>Commercial non-motorised boating activities</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Scale and intensity of the activity. • Amenity effects, including loss of privacy, remoteness or isolation. • Congestion and safety, including effects on other commercial operators and recreational users. • Waste disposal. • Cumulative effects. • Parking, access safety and transportation effects. 	RD
21.5.40	<p>Jetties and Moorings in the Frankton Arm</p> <p>Jetties and moorings in the Frankton Arm, identified as the area located to the east of the Outstanding Natural Landscape line as shown on the District Plan Maps.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Whether they are dominant or obtrusive elements in the shore scape or lake view, particularly when viewed from any public place, including whether they are situated in natural bays and not headlands. • Whether the structure causes an impediment to craft manoeuvring and using shore waters. • The degree to which the structure will diminish the recreational experience of people using public areas around the shoreline. • The effects associated with congestion and clutter around the shoreline. Including whether the structure contributes to an adverse cumulative effect. • Whether the structure will be used by a number and range of people and craft, including the general public. • The degree to which the structure would be compatible with landscape and amenity values, including colour, materials, design. 	RD
21.5.41	<p>Structures and Moorings</p> <p>Any structure or mooring that passes across or through the surface of any lake or river or is attached to the bank of any lake and river, other than where fences cross lakes and rivers.</p>	D
21.5.42	<p>Structures and Moorings</p> <p>Any structures or mooring that passes across or through the surface of any lake or river or attached to the bank or any lake or river in those locations on the District Plan Maps where such structures or moorings are shown as being non-complying.</p>	NC
21.5.43	<p>Commercial boating activities</p> <p>Motorised commercial boating activities.</p> <p><i>Note: Any person wishing to commence commercial boating activities could require a concession under the QLDC Navigation Safety Bylaw. There is an exclusive concession currently granted to a commercial boating operator on the Shotover River between Edith Cavell Bridge and Tucker Beach until 1 April 2009 with four rights of renewal of five years each.</i></p>	D

Table 9	Activities and Standards for Activities on the Surface of Lakes and Rivers	Activity Status
<p>21.5.44</p>	<p>Recreational and commercial boating activities</p> <p>The use of motorised craft on the following lakes and rivers is prohibited, except where the activities are for emergency search and rescue, hydrological survey, public scientific research, resource management monitoring or water weed control, or for access to adjoining land for farming activities.</p> <p>21.5.44.1 Hawea River.</p> <p>21.5.44.2 Commercial boating activities on Lake Hayes.</p> <p>21.5.44.3 Any tributary of the Dart and Rees rivers (except the Rockburn tributary of the Dart River) or upstream of Muddy Creek on the Rees River.</p> <p>21.5.44.4 Young River or any tributary of the Young or Wilkin Rivers and any other tributaries of the Makarora River.</p> <p>21.5.44.5 Dingle Burn and Timaru Creek.</p> <p>21.5.44.6 The tributaries of the Hunter River.</p> <p>21.5.44.7 Hunter River during the months of May to October inclusive.</p> <p>21.5.44.8 Motatapu River.</p> <p>21.5.44.9 Any tributary of the Matukituki River.</p> <p>21.5.44.10 Clutha River - More than six jet boat race days per year as allowed by Rule 21.5.38.</p>	<p>PR</p>
	<p>Standards: Surface of Lakes and Rivers</p>	<p>Non-compliance Status</p>
<p>21.5.45</p>	<p>Boating craft used for Accommodation</p> <p>Boating craft on the surface of the lakes and rivers used for accommodation, unless:</p> <p>21.5.45.1 the craft is only used for overnight recreational accommodation; and</p> <p>21.5.45.2 the craft is not used as part of any commercial activity; and</p> <p>21.5.45.3 all effluent is contained on board the craft and removed.</p>	<p>NC</p>

Table 9	Activities and Standards for Activities on the Surface of Lakes and Rivers	Activity Status
21.5.46	<p>No new jetty within the Frankton Arm identified as the area east of the Outstanding Natural Landscape Line shall:</p> <p>21.5.46.1 be closer than 200 metres to any existing jetty;</p> <p>21.5.46.2 exceed 20 metres in length;</p> <p>21.5.46.3 exceed four berths per jetty, of which at least one berth is available to the public at all times;</p> <p>21.5.46.4 be constructed further than 200 metres from a property in which at least one of the registered owners of the jetty resides.</p>	NC
21.5.47	<p>The following activities are subject to compliance with the following standards:</p> <p>21.5.47.1 Kawarau River, Lower Shotover River downstream of Tucker Beach and Lake Wakatipu within Frankton Arm - Commercial motorised craft shall only operate between the hours of 0800 to 2000.</p> <p>21.5.47.2 Lake Wanaka, Lake Hawea and Lake Wakatipu - Commercial jetski operations shall only be undertaken between the hours of 0800 to 2100 on lakes Wanaka and Hawea and 0800 and 2000 on Lake Wakatipu.</p> <p>21.5.47.3 Dart and Rees Rivers - Commercial motorised craft shall only operate between the hours of 0800 to 1800, except that above the confluence with the Beansburn on the Dart River commercial motorised craft shall only operate between the hours of 1000 to 1700.</p> <p>21.5.47.4 Dart River – The total number of commercial motorised boating activities shall not exceed 26 trips in any one day. No more than two commercial jet boat operators shall operate upstream of the confluence of the Beansburn, other than for tramper and angler access only.</p>	NC

Table 10	Activities and Standards for Activities on Closeburn Station	Activity Status
21.5.48	<p>The construction of a single residential unit and any accessory building(s) within lots 1 to 6, 8 to 21 DP 26634 located at Closeburn Station. Control is reserved to all of the following:</p> <ul style="list-style-type: none"> • External appearances and landscaping, with regard to conditions 2.2(a), (b), (e) and (f) of resource consent RM950829. • Associated earthworks, lighting, access and landscaping. • Provision of water supply, sewage treatment and disposal, electricity and telecommunications services. 	C
	Standards: Closeburn Station	Non-compliance Status
21.5.49	<p>Setback from Internal Boundaries</p> <p>21.5.49.1 The minimum setback from internal boundaries for buildings within lots 1 to 6 and 8 to 21 DP 26634 at Closeburn Station shall be 2 metres.</p> <p>21.5.49.2 There shall be no minimum setback from internal boundaries within lots 7 and 22 to 27 DP300573 at Closeburn Station.</p>	D

Table 10	Activities and Standards for Activities on Closeburn Station	Activity Status
21.5.50	<p>Building Height</p> <p>21.5.50.1 The maximum height for any building, other than accessory buildings, within Lots 1 and 6 and 8 to 21 DP 26634 at Closeburn Station shall be 7m.</p> <p>21.5.50.2 The maximum height for any accessory building within Lots 1 to 6 and 8 to 21 DP 26634 at Closeburn Station shall be 5m.</p> <p>21.5.50.3 The maximum height for any building within Lot 23 DP 300573 at Closeburn Station shall be 5.5m.</p> <p>21.5.50.4 The maximum height for any building within Lot 24 DP 300573 at Closeburn Station shall be 5m.</p>	NC
21.5.51	<p>Residential Density</p> <p>In the Rural Zone at Closeburn Station, there shall be no more than one residential unit per allotment (being lots 1-27 DP 26634); excluding the large rural lots (being lots 100 and 101 DP 26634) held in common ownership.</p>	NC
21.5.52	<p>Building Coverage</p> <p>In lots 1-27 at Closeburn Station, the maximum residential building coverage of all activities on any site shall be 35%.</p>	NC

21.6

Non-Notification of Applications

Any application for resource consent for the following matters shall not require the written consent of other persons and shall not be notified or limited-notified:

- 21.6.1** Controlled activity retail sales of farm and garden produce and handicrafts grown or produced on site (**Rule 21.4.14**), except where the access is onto a State highway.
- 21.6.2** Controlled activity mineral exploration (**Rule 21.4.31**).
- 21.6.3** Controlled activity buildings at Closeburn Station (**Rule 21.5.48**).

21.7.1 Outstanding Natural Features and Outstanding Natural Landscapes (ONF and ONL).

These assessment matters shall be considered with regard to the following principles because, in or on Outstanding Natural Features and Landscapes, the applicable activities are inappropriate in almost all locations within the zone:

21.7.1.1 The assessment matters are to be stringently applied to the effect that successful applications will be exceptional cases.

21.7.1.2 Existing vegetation that:

- a. was either planted after, or, self-seeded and less than 1 metre in height at 28 September 2002; and,
- b. obstructs or substantially interferes with views of the proposed development from roads or other public places, shall not be considered:
 - as beneficial under any of the following assessment matters unless the Council considers the vegetation (or some of it) is appropriate for the location in the context of the proposed development; and
 - as part of the permitted baseline.

21.7.1.3 Effects on landscape quality and character

In considering whether the proposed development will maintain or enhance the quality and character of Outstanding Natural Features and Landscapes, the Council shall be satisfied of the extent to which the proposed development will affect landscape quality and character, taking into account the following elements:

- a. Physical attributes:
 - Geological, topographical, geographic elements in the context of whether these formative processes have a profound influence on landscape character;
 - Vegetation (exotic and indigenous);
 - The presence of waterbodies including lakes, rivers, streams, wetlands.
- b. Visual attributes:
 - Legibility or expressiveness – how obviously the feature or landscape demonstrates its formative processes;
 - Aesthetic values including memorability and naturalness;
 - Transient values including values at certain times of the day or year;
 - Human influence and management – settlements, land management patterns, buildings, roads.

- c. Appreciation and cultural attributes:
- Whether the elements identified in (a) and (b) are shared and recognised;
 - Cultural and spiritual values for tangata whenua;
 - Historical and heritage associations.

The Council acknowledges that Tangata Whenua beliefs and values for a specific location may not be known without input from iwi.

- d. In the context of (a) to (c) above, the degree to which the proposed development will affect the existing landscape quality and character, including whether the proposed development accords with or degrades landscape quality and character, and to what degree.
- e. any proposed new boundaries will not give rise to artificial or unnatural lines (such as planting and fence lines) or otherwise degrade the landscape character.

21.7.1.4 Effects on visual amenity

In considering whether the potential visibility of the proposed development will maintain and enhance visual amenity, values the Council shall be satisfied that:

- a. the extent to which the proposed development will not be visible or will be reasonably difficult to see when viewed from public roads and other public places. In the case of proposed development in the vicinity of unformed legal roads, the Council shall also consider present use and the practicalities and likelihood of potential use of unformed legal roads for vehicular and/or pedestrian, cycling, equestrian and other means of access;
- b. the proposed development will not be visually prominent such that it detracts from public or private views of and within Outstanding Natural Features and Landscapes;
- c. the proposal will be appropriately screened or hidden from view by elements that are in keeping with the character of the landscape;
- d. the proposed development will not reduce the visual amenity values of the wider landscape (not just the immediate landscape);
- e. structures will not be located where they will break the line and form of any ridges, hills and slopes;
- f. any roads, access, lighting, earthworks and landscaping will not reduce the visual amenity of the landscape.

21.7.1.5 Design and density of Development

In considering the appropriateness of the design and density of the proposed development, whether and to what extent:

- a. opportunity has been taken to aggregate built development to utilise common access ways including roads, pedestrian linkages, services and open space (ie. open space held in one title whether jointly or otherwise);
- b. there is merit in clustering the proposed building(s) or building platform(s) within areas that are least sensitive to change;
- c. development, including access, is located within the parts of the site where it would be least visible from public and private locations;

- d. development, including access, is located in the parts of the site where it has the least impact on landscape character.

21.7.1.6 Cumulative effects of subdivision and development on the landscape

Taking into account whether and to what extent existing, consented or permitted development (including unimplemented but existing resource consent or zoning) may already have degraded:

- a. the landscape quality or character; or,
- b. the visual amenity values of the landscape.

The Council shall be satisfied the proposed development, in combination with these factors will not further adversely affect the landscape quality, character, or visual amenity values.

21.7.2 Rural Landscape Classification (RLC)

These assessment matters shall be considered with regard to the following principles because in the Rural Landscapes the applicable activities are inappropriate in many locations:

21.7.2.1 The assessment matters shall be stringently applied to the effect that successful applications are, on balance, consistent with the criteria.

21.7.2.2 Existing vegetation that:

- a. was either planted after, or, self seeded and less than 1 metre in height at 28 September 2002; and,
- b. obstructs or substantially interferes with views of the proposed development from roads or other public places, shall not be considered:
 - as beneficial under any of the following assessment matters unless the Council considers the vegetation (or some of it) is appropriate for the location in the context of the proposed development; and
 - as part of the permitted baseline.

21.7.2.3 Effects on landscape quality and character:

The following shall be taken into account:

- a. where the site is adjacent to an Outstanding Natural Feature or Landscape, whether and the extent to which the proposed development will adversely affect the quality and character of the adjacent Outstanding Natural Feature or Landscape;
- b. whether and the extent to which the scale and nature of the proposed development will degrade the quality and character of the surrounding Rural Landscape;
- c. whether the design and any landscaping would be compatible with or would enhance the quality and character of the Rural Landscape.

21.7.2.4 Effects on visual amenity:

Whether the development will result in a loss of the visual amenity of the Rural Landscape, having regard to whether and the extent to which:

- a. the visual prominence of the proposed development from any public places will reduce the visual amenity of the Rural Landscape. In the case of proposed development which is visible from unformed legal roads, regard shall be had to the frequency and intensity of the present use and, the practicalities and likelihood of potential use of these unformed legal roads as access;
- b. the proposed development is likely to be visually prominent such that it detracts from private views;
- c. any screening or other mitigation by any proposed method such as earthworks and/or new planting will detract from or obstruct views of the Rural Landscape from both public and private locations;
- d. the proposed development is enclosed by any confining elements of topography and/or vegetation and the ability of these elements to reduce visibility from public and private locations;
- e. any proposed roads, boundaries and associated planting, lighting, earthworks and landscaping will reduce visual amenity, with particular regard to elements which are inconsistent with the existing natural topography and patterns;
- f. boundaries follow, wherever reasonably possible and practicable, the natural lines of the landscape or landscape units.

21.7.2.5 Design and density of development:

In considering the appropriateness of the design and density of the proposed development, whether and to what extent:

- a. opportunity has been taken to aggregate built development to utilise common access ways including roads, pedestrian linkages, services and open space (ie. open space held in one title whether jointly or otherwise);
- b. there is merit in clustering the proposed building(s) or building platform(s) having regard to the overall density and intensity of the proposed development and whether this would exceed the ability of the landscape to absorb change;
- c. development, including access, is located within the parts of the site where they will be least visible from public and private locations;
- d. development, including access, is located in the parts of the site where they will have the least impact on landscape character.

21.7.2.6 Tangata Whenua, biodiversity and geological values:

- a. whether and to what extent the proposed development will degrade Tangata Whenua values including Tōpuni or nohoanga, indigenous biodiversity, geological or geomorphological values or features and, the positive effects any proposed or existing protection or regeneration of these values or features will have.

The Council acknowledges that Tangata Whenua beliefs and values for a specific location may not be known without input from iwi.

21.7.2.7 Cumulative effects of development on the landscape:

Taking into account whether and to what extent any existing, consented or permitted development (including unimplemented but existing resource consent or zoning) has degraded landscape quality, character, and visual amenity values. The Council shall be satisfied;

- a. the proposed development will not further degrade landscape quality, character and visual amenity values, with particular regard to situations that would result in a loss of valued quality, character and openness due to the prevalence of residential or non-farming activity within the Rural Landscape.
- b. where in the case resource consent may be granted to the proposed development but it represents a threshold to which the landscape could absorb any further development, whether any further cumulative adverse effects would be avoided by way of imposing a covenant, consent notice or other legal instrument that maintains open space.

21.7.3 Other factors and positive effects, applicable in all the landscape categories (ONF, ONL and RLC)

21.7.3.1 In the case of a proposed residential activity or specific development, whether a specific building design, rather than nominating a building platform, helps demonstrate whether the proposed development is appropriate.

21.7.3.2 Other than where the proposed development is a subdivision and/or residential activity, whether the proposed development, including any buildings and the activity itself, are consistent with rural activities or the rural resource and would maintain or enhance the quality and character of the landscape.

21.7.3.3 In considering whether there are any positive effects in relation to the proposed development, or remedying or mitigating the continuing adverse effects of past subdivision or development, the Council shall take the following matters into account:

- a. whether the proposed subdivision or development provides an opportunity to protect the landscape from further development and may include open space covenants or esplanade reserves;
- b. whether the proposed subdivision or development would enhance the character of the landscape, or protects and enhances indigenous biodiversity values, in particular the habitat of any threatened species, or land environment identified as chronically or acutely threatened on the Land Environments New Zealand (LENZ) threatened environment status;
- c. any positive effects including environmental compensation, easements for public access such as walking, cycling or bridleways or access to lakes, rivers or conservation areas;
- d. any opportunities to retire marginal farming land and revert it to indigenous vegetation;
- e. where adverse effects cannot be avoided, mitigated or remedied, the merits of any compensation;
- f. whether the proposed development assists in retaining the land use in low intensity farming where that activity maintains the valued landscape character.

36 NOISE

36.1

Purpose

The purpose of this section is to manage the effects of noise in the District. Noise is part of the environment. While almost all activities give rise to some, noise can cause nuisance and give rise to adverse effects on amenity values and the health and wellbeing of people and communities. Adverse effects may arise where the location, character, frequency, duration and timing of noise is inconsistent or incompatible with anticipated or reasonable noise levels.

The Resource Management Act (RMA) 1991 requires every occupier of land and every person carrying out an activity to adopt the best practicable option to ensure noise does not exceed a reasonable level. The RMA also defines noise to include vibration. “Reasonable” noise levels are determined by the standard of amenity and ambient noise level of the receiving environment and the Council provides direction on this through the prescription of noise levels for each Zone. Noise is also managed by the Council through the use of relevant New Zealand Standards for noise. Land use and development activities, including activities on the surface of lakes and rivers should be managed in a manner that avoids, remedies or mitigates the adverse effects of noise to a reasonable level.

In most situations, activities should consider the control of noise at the source and the mitigation of adverse effects of noise on the receiving environment. However, the onus on the reduction of effects of noise should not always fall on the noise generating activity. In some cases it may be appropriate for the noise receiver to avoid or mitigate the effects from an existing noise generating activity, particularly where the noise receiver is a noise sensitive activity.

Overflying aircraft have the potential to adversely affect amenity values. The Council controls noise emissions from airports, including take-offs and landings, via provisions in this District Plan, and Designation conditions. However, this is different from controlling noise from aircraft that are in flight. The RMA which empowers territorial authorities to regulate activities on land and water affecting amenity values, does not enable the authorities to control noise from overflying aircraft. Noise from overflying aircraft can be controlled through section 29A of the Civil Aviation Act 1990.

Noise in relation to town centres is not addressed in this chapter, but rather in the Town Centres chapters. This is due to the town centre-specific complexities on noise in those zones, and its fundamental nature as an issue that inter-relates with all other issues in those zones.

36.2

Objectives and Policies

36.2.1 **Objective - Control the adverse effects of noise emissions to a reasonable level and manage the potential for conflict arising from adverse noise effects between land use activities.**

Policies **36.2.1.1** Manage subdivision, land use and development activities in a manner that avoids, remedies or mitigates the adverse effects of unreasonable noise.

36.2.1.2 Avoid, remedy or mitigate adverse noise reverse sensitivity effects.

36.3.1 District Wide

Attention is drawn to the following District Wide Chapters. All provisions referred to are within Stage 1 of the Proposed District Plan, unless marked as Operative District Plan (ODP).

25 Earthworks (22 ODP)	27 Subdivision
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36.3.2 Clarification

36.3.2.1 The following tables describe activities, standards and subsequent level of activity for resource consent purposes. Any activity that is not Permitted requires resource consent, and any activity that is not specifically identified in a level of activity, but breaches a standard, requires resource consent as a Non-complying activity.

36.3.2.2 The following abbreviations are used in the tables:

P	Permitted	C	Controlled	RD	Restricted Discretionary
D	Discretionary	NC	Non Complying	PR	Prohibited

36.3.2.3 Sound levels shall be measured and assessed in accordance with NZS **6801:2008** Acoustics - Measurement of Environmental Sound and NZS **6802:2008** Acoustics - Environmental Noise, except where another Standard has been referenced in these rules, in which case that Standard should apply.

36.3.2.4 Any activities which are Permitted, Controlled or Restricted Discretionary in any section of the District Plan must comply with the noise standards in Tables 2, 3, 4 and 5 below, where that standard is relevant to that activity.

36.3.2.5 In addition to the above, the noise from the following activities listed in Table 1 shall be Permitted activities in all zones (unless otherwise stated). For the avoidance of doubt, the activities in Table 1 are exempt from complying with the noise standards set out in Table 2.

36.3.2.6 Notwithstanding compliance with Rules 36.5.13 (Helicopters) and 36.5.14 (Fixed Wing Aircraft) in Table 3, informal airports shall be subject to the rules in the applicable zones.

36.3.2.7 Sound from non-residential activities, visitor accommodation activities and sound from stationary electrical and mechanical equipment must not exceed the noise limits in Table 2 in each of the zones in which sound from an activity is received. The noise limits in Table 2 do not apply to assessment locations within the same site as the activity.

36.3.2.8 The noise limits contained in Table 2 do not apply to sound from aircraft operations at Queenstown Airport.

36.3.2.9 Noise standards for Town Centre, Local Corner Shopping and Business Mixed Use zones are not included in this chapter. Please refer to Chapters 12, 13, 14, 15 and 16.

36.3.2.10 The standards in Table 3 are specific to the activities listed in each row and are exempt from complying with the noise standards set out in Table 2.

36.4 Rules - Activities

Table 1	Activity	Activity Status
36.4.1	Sound from vehicles on public roads or trains on railway lines (including at railway yards, railway sidings or stations).	P
36.4.2	Any warning device that is activated in the event of intrusion, danger, an emergency or for safety purposes, provided that vehicle reversing alarms are a broadband directional type.	P
36.4.3	Sound arising from fire stations (including rural fire stations), fire service appliance sirens and call-out sirens for volunteer brigades.	P
36.4.4	Sound from temporary military training activities.	P
36.4.5	In the Rural Zone and the Gibbston Character Zone, sound from farming and forestry activities, and bird scaring devices, other than sound from stationary motors and stationary equipment.	P
36.4.6	Sound from aircraft movements within designated airports.	P
36.4.7	Sound from telecommunications cabinets in road reserve.	P

36.5 Rules - Standards

Table 2	General Standards				Non-compliance Status
	Activity or sound source	Assessment location	Time	Noise Limits	
36.5.1	Rural Zone (Note: refer 36.5.2 for noise received in the Rural Zone from the Queenstown Airport Mixed Use Zone). Gibbston Character Zone	Any point within the notional boundary of a residential unit	0800h to 2000h	50 dB L _{Aeq(15 min)}	NC
			2000h to 0800h	40 dB L _{Aeq(15 min)} 75 dB L _{AFmax}	NC
36.5.2	Sound from the Queenstown Airport Mixed Use Zone received in the Residential Zones and the Rural Zone	At any point within the Residential Zone and at any point within the notional boundary in the Rural Zone	0700h to 2200h	55 dB L _{Aeq(15 min)}	RD Discretion is restricted to the extent of effects of noise generated on adjoining zones.
			2200h to 0700h	45 dB L _{Aeq(15 min)} 75 dB L _{AFmax}	

Table 2	General Standards				Non-compliance Status
	Activity or sound source	Assessment location	Time	Noise Limits	
36.5.3	Millbrook Resort Zone	Any point within the Residencies / Residential Activity Areas	0800h to 2000h	50 dB L _{Aeq(15 min)}	NC
	Jacks Point Resort Zone		2000h to 0800h	40 dB L _{Aeq(15 min)}	NC
	(see also 36.5.17)			75 dB L _{AFmax}	
36.5.4	Low, Medium, and High Density and Large Lot Residential Zones (Note: refer 36.5.2 for noise received in the Residential Zones from the Queenstown Airport Mixed Use Zone). Arrowtown Residential Historic Management Zone Rural Residential Zone Rural Lifestyle Zone Townships Zones Waterfall Park Resort Zone Rural Visitor Zones Quail Rise Special Zone Meadow Park Special Zone Ballantyne Road Special Zone (excluding Activity Area C) Shotover Country Special Zone (Activity Areas 11a-1e, 4 and 5a-5e) Penrith Park Special Zone Bendemeer Special Zone Mt Cardrona Station Special Zone (Activity Areas 2, 3 and 4) Kingston Village Special Zone (Activity Areas 1,3 and 4)	Any point within any site	0800h to 2000h	50 dB L _{Aeq(15 min)}	NC
			2000h to 0800h	40 dB L _{Aeq(15 min)} 75 dB L _{AFmax}	NC
36.5.5	Queenstown Airport Mixed Use Zone	At any point within the zone.	Any time	No limit	P

Table 2	General Standards				Non-compliance Status
	Activity or sound source	Assessment location	Time	Noise Limits	
36.5.6	Shotover Country Special Zone (Activity Areas 2a-2c and 3) Mt Cardrona Station Special Zone (Activity Area 1) Ballantyne Road Special Zone (Activity Area C)	Any point within any site	0800h to 2200h	60 dB L _{Aeq(15 min)}	NC
			2200h to 0800h	50 dB L _{Aeq(15 min)} 75 dB L _{AFmax}	NC
36.5.7	Kingston Village Special Zone (Activity Area 2) Industrial Zones	36.5.7.1 Any point within Activity Area 2 boundary	Any point within Activity Area 2 boundary	60 dB L _{Aeq(15 min)}	NC
			2000h to 0800h	50 dB L _{Aeq(15 min)} 75 dB L _{AFmax}	NC
			2200h to 0700h	45 dB L _{Aeq(15 min)} 75 dB L _{AFmax}	NC
			0700h to 2200h	60 dB L _{Aeq(15 min)}	NC
		36.5.7.2 Any point within the boundary of Activity Areas of 2a, 3, 4, 5, 6, 7 and 8	Any point within the boundary of Activity Areas of 2a, 3, 4, 5, 6, 7 and 8	50 dB L _{Aeq(15 min)} 75 dB L _{AFmax}	NC
			2000h to 0800h	40 dB L _{Aeq(15 min)} 75 dB L _{AFmax}	NC
			2200h to 0800h	65dBA L ₁₀ 75dBA L _{max}	
		65dBA L ₁₀ 75dBA L _{max}			

Table 3	Specific Standards				Non-compliance Status	
	Activity or sound source	Assessment location	Time	Noise Limits		
36.5.8	<p>Certain Telecommunications Activities in Road Reserve</p> <p>The Resource Management (National Environmental Standards for Telecommunications Facilities “NESTF”) Regulations 2008 provide for noise from telecommunications equipment cabinets located in the road reserve as a permitted activity, subject to the specified noise limits.</p> <p>The noise from the cabinet must be measured in accordance with NZS 6801: 2008 Acoustics – Measurement of environmental sound, the measurement must be adjusted in accordance with NZS 6801: 2008 Acoustics – Measurement of environmental sound to a free field incident sound level, and the adjusted measurement must be assessed in accordance with NZS 6802: 2008 Acoustics – Environmental noise.</p>	<p>36.5.8.1 Where a cabinet located in a road reserve in an area in which allows residential activities, the noise from the cabinet must be measured and assessed at 1 of the following points:</p> <p>a. if the side of a building containing a habitable room is within 4 m of the closest boundary of the road reserve, the noise must be measured—</p> <ul style="list-style-type: none"> at a point 1 m from the side of the building; or at a point in the plane of the side of the building: <p>b. in any other case, the noise must be measured at a point that is—</p> <ul style="list-style-type: none"> at least 3 m from the cabinet; and within the legal boundary of land next to the part of the road reserve where the cabinet is located. 	0700h to 2200h	50 dB $L_{Aeq(5\ min)}$	Refer NESTF	
			2200h to 0700h	40 dB $L_{Aeq(5\ min)}$		
			2200h to 0700h	65 dB L_{AFmax}		
		<p>36.5.8.2 Where a cabinet is located in a road reserve in an area in which does not allow residential activities, the noise from the cabinet must be measured and assessed at 1 of the following points:</p> <p>a. if the side of a building containing a habitable room is within 4 m of the closest boundary of the road reserve, the noise must be measured—</p> <ul style="list-style-type: none"> at a point 1 m from the side of the building; or at a point in the plane of the side of the building: <p>b. in any other case, the noise must be measured at a point that is—</p> <ul style="list-style-type: none"> at least 3 m from the cabinet; and within the legal boundary of land next to the part of the road reserve where the cabinet is located. 	Any time	60 dB $L_{Aeq(5\ min)}$		
			<p>a. if the side of a building containing a habitable room is within 4 m of the closest boundary of the road reserve, the noise must be measured—</p> <ul style="list-style-type: none"> at a point 1 m from the side of the building; or at a point in the plane of the side of the building: <p>b. in any other case, the noise must be measured at a point that is—</p> <ul style="list-style-type: none"> at least 3 m from the cabinet; and within the legal boundary of land next to the part of the road reserve where the cabinet is located. 	2200h to 0700h		65 dB L_{AFmax}

Table 3	Specific Standards				Non-compliance Status
	Activity or sound source	Assessment location	Time	Noise Limits	
36.5.9	<p>Wind Turbines</p> <p>Wind farm sound must be measured and assessed in accordance with NZS 6808:2010 Acoustics - Wind Farm Noise</p>	At any point within the notional boundary of any residential unit.	Any time	40 dB $L_{A90(10 \text{ min})}$ or the background sound level $L_{A90(10 \text{ min})}$ plus 5 dB, whichever is higher	NC
36.5.10	<p>Audible Bird Scaring Devices</p> <p>The operation of audible devices (including gas guns, audible avian distress alarms and firearms for the purpose of bird scaring, and excluding noise arising from fire stations).</p> <p>In relation to gas guns, audible avian distress alarms and firearms no more than 15 audible events shall occur per device in any 60 minute period.</p> <p>Each audible event shall not exceed three sound emissions from any single device within a 1 minute period and no such events are permitted during the period between sunset and sunrise the following day.</p> <p>The number of devices shall not exceed one device per 4 hectares of land in any single land holding, except that in the case of a single land holding less than 4 hectares in area, one device shall be permitted.</p>	36.5.10.1 At any point within a Residential Zone or the notional boundary of any residential unit, other than on the property in which the device is located.	Hours of daylight but not earlier than 0600h.	65 dB L_{AE} shall apply to any one event	NC
		36.5.10.2 In any public place.	At any time	90 dB L_{AE} is received from any one noise event	
36.5.11	<p>Frost fans</p> <p>Sound from frost fans.</p>	At any point within the notional boundary of any residential unit, other than residential units on the same site as the activity.	At any time	85 dB L_{AFmax}	NC
36.5.12	<p>Vibration</p> <p>Vibration from any activity shall not exceed the guideline values given in DIN 4150-3:1999 Effects of vibration on structures at any buildings on any other site.</p>	On any structures or buildings on any other site.	Refer to relevant standard	Refer to relevant standard	NC

Table 3	Specific Standards				Non-compliance Status
	Activity or sound source	Assessment location	Time	Noise Limits	
36.5.13	<p>Helicopters</p> <p>Sound from any helicopter landing area must be measured and assessed in accordance with NZ 6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas.</p> <p>Sound from helicopter landing areas must comply with the limits of acceptability set out in Table 1 of NZS 6807.</p> <p>For the avoidance of doubt this rule does not apply to designated airports.</p>	<p>At any point within the notional boundary of any residential unit, other than residential units on the same site as the activity.</p> <p><i>*Note: The applicable noise limit in this rule and in rule 36.5.14 below for informal airports/landing strips used by a combination of both fixed wing and helicopters shall be determined by an appropriately qualified acoustic engineer on the basis of the dominant aircraft type to be used.</i></p>	At all times	50 dB L _{dn}	NC
36.5.14	<p>Fixed Wing Aircraft</p> <p>Sound from airports/landing strips for fixed wing aircraft must be measured and assessed in accordance with NZS 6805:1992 Airport Noise Management and Land Use Planning.</p> <p>For the avoidance of doubt this rule does not apply to designated airports.</p>	<p>At any point within the notional boundary of any residential unit and at any point within a residential site other than residential units on the same site as the activity.</p> <p><i>*Note: The applicable noise limit in this rule and in rule 36.5.13 above for informal airports/landing strips used by a combination of both fixed wing and helicopters shall be determined by an appropriately qualified acoustic engineer on the basis of the dominant aircraft type to be used.</i></p>	At all times	55 dB L _{dn}	NC
36.5.15	<p>Construction Noise</p> <p>Construction sound must be measured and assessed in accordance with NZS 6803:1999 Acoustics - Construction Noise. Construction sound must comply with the recommended upper limits in Tables 2 and 3 of NZS 6803. Construction sound must be managed in accordance with NZS 6803.</p>	At any point within any other site.	Refer to relevant standard	Refer to relevant standard	D
36.5.16	<p>Commercial Motorised Craft</p> <p>Motorised craft on the surface of lakes and rivers must be operated and conducted such that a maximum sound level is not exceeded, when measured and assessed in accordance with 36.8.</p>	Refer 36.8	Refer 36.8	77 dB L _{ASmax}	NC

Table 3	Specific Standards				Non-compliance Status
	Activity or sound source	Assessment location	Time	Noise Limits	
36.5.17	Jacks Point State Highway Noise	Any residential activities located within 80 m of the seal edge of State Highway 6, shall be designed and constructed to meet noise performance standards for noise from traffic on the State Highway that will not exceed 35dBA Leq(24 hour) in bedrooms and 40 dBA (Leq (24 hour) for other habitable rooms in accordance with the satisfactory sound levels recommended by Australian and New Zealand Standard AS/NZ2107:2000 Acoustics – Recommended design sound levels and reverberation times for building interiors.			NC

36.6

Airport Noise

36.6.1 Wanaka Airport

Within the Rural Visitor Zone, the construction of, alteration, or addition to any building containing an activity sensitive to aircraft noise shall be designed to achieve an internal design sound level of 40 dB Ldn, based on the 2036 noise contours, at the same time as meeting the ventilation requirements in Table 5. Compliance can either be demonstrated by submitting a certificate to Council from a person suitably qualified in acoustics stating that the proposed construction will achieve the internal design sound level, or by installation of mechanical ventilation to achieve the requirements in Table 5.

36.6.2 Sound Insulation Requirements for the Queenstown and Wanaka Airport - Acceptable Construction Materials (Table 4).

The following table sets out the construction materials required to achieve appropriate sound insulation within the airport Air Noise Boundary (ANB).

Building Element	Minimum Construction	
External Walls	Exterior Lining:	Brick or concrete block or concrete, or 20mm timber or 6mm fibre cement
	Insulation:	Not required for acoustical purposes
	Frame:	One layer of 9mm gypsum or plasterboard (or an equivalent combination of exterior and interior wall mass)
Windows/Glazed Doors	4mm glazing with effective compression seals or for double glazing 6mm-6mm airgap-6mm	

Building Element	Minimum Construction	
Pitched Roof	Cladding:	0.5mm profiled steel or masonry tiles or 6mm corrugated fibre cement
	Insulation:	100mm thermal insulation blanket/batts
	Ceiling:	1 layer 9mm gypsum or plaster board
Skillion Roof	Cladding:	0.5mm profiled steel or 6mm fibre cement
	Sarking:	None Required
	Insulation:	100mm thermal insulation blanket/batts
	Ceiling:	1 layer 1mm gypsum or plasterboard
External Door	Solid core door (min 24kg/m ²) with weather seals	

Note: The specified construction materials in this table are the minimum required to meet the Indoor Design Sound Level. Alternatives with greater mass or larger thicknesses of insulation will be acceptable. Any additional construction requirements to meet other applicable standards not covered by this rule (eg fire, Building Code etc) would also need to be implemented.

36.6.3 Ventilation Requirements for the Queenstown and Wanaka Airport (Table 5)

The following table sets out the ventilation requirements within the airport Outer Control Boundary (OCB) and Air Noise Boundary (ANB).

Room Type	Outdoor Air Ventilation Rate (Air Changes Room Type per Hour, ac/hr)	
	Low Setting	High Setting
Bedrooms	1-2 ac/hr	Min. 5 ac/hr
Other Critical Listening Environments	1-2 ac/hr	Min. 15 ac/hr
Noise from ventilation systems shall not exceed 35 dB LAeq(1 min), on High Setting and 30 dB LAeq(1 min), on Low Setting. Noise levels shall be measured at a distance of 1 m to 2 m from any diffuser.		
Each system must be able to be individually switched on and off and when on, be controlled across the range of ventilation rates by the occupant with a minimum of 3 stages.		
Each system providing the low setting flow rates is to be provided with a heating system which, at any time required by the occupant, is able to provide the incoming air with an 18 °C heat rise when the airflow is set to the low setting. Each heating system is to have a minimum of 3 equal heating stages.		
If air conditioning is provided to any space then the high setting ventilation requirement for that space is not required.		

36.7

Ventilation Requirements for other Zones (Table 6)

The following table (Table 6) sets out the ventilation requirements in the Wanaka and Queenstown Town Centre Zones, the Local Shopping Centre Zone and the Business Mixed Use Zone.

Table 6

Room Type	Outdoor Air Ventilation Rate (Air Changes Room Type per Hour, ac/hr)	
	Low Setting	High Setting
Bedrooms	1-2 ac/hr	Min. 5 ac/hr
Other Critical Listening Environments	1-2 ac/hr	Min. 15 ac/hr
Noise from ventilation systems shall not exceed 35 dB LAeq(1 min), on High Setting and 30 dB LAeq(1 min), on Low Setting. Noise levels shall be measured at a distance of 1 m to 2 m from any diffuser.		
Each system must be able to be individually switched on and off and when on, be controlled across the range of ventilation rates by the occupant with a minimum of 3 stages.		
Each system providing the low setting flow rates is to be provided with a heating system which, at any time required by the occupant, is able to provide the incoming air with an 18 °C heat rise when the airflow is set to the low setting. Each heating system is to have a minimum of 3 equal heating stages.		
If air conditioning is provided to any space then the high setting ventilation requirement for that space is not required.		

36.8

Acoustic Measurement and Assessment

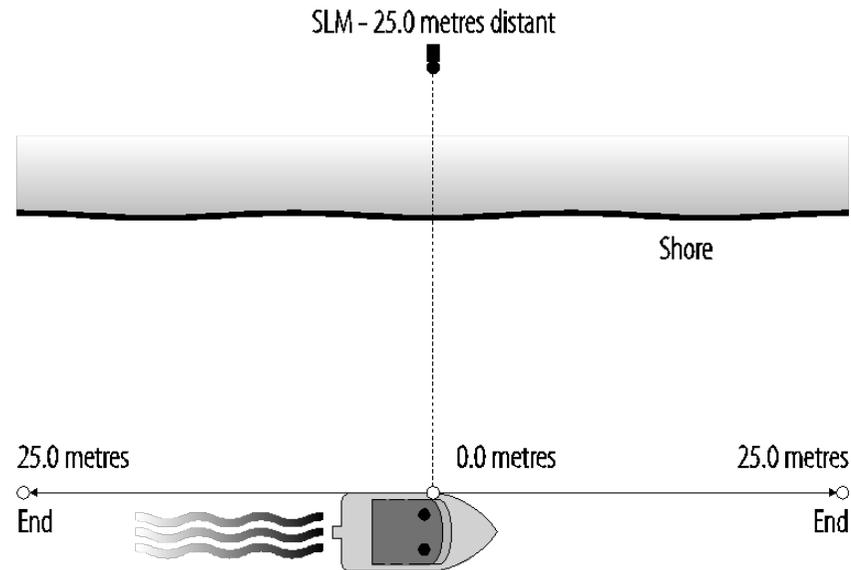
36.8.1 Acoustic Measurement and Assessment of Motorised Craft on the Surface of Rivers and Lakes

- 36.8.1.1** All motorised craft operating on the surface of lakes and rivers within the District must have and display a current acoustic certificate of fitness. Testing shall be undertaken on a strictly controlled “test” day, and shall be conducted by an enforcement officer appointed pursuant to the Act.
- 36.8.1.2** The measured sound pressure level shall not exceed a maximum A weighted level:
- 77 dB LASmax for vessels to be operated between the hours of 0800 to 2000;
 - 67 dB LASmax for vessels to be operated between the hours of 2000 to 0800.
- 36.8.1.3** Retesting will be undertaken at not more than 12 monthly intervals. Additional monitoring measurements shall be performed in order to check that the noise of the craft remains within the prescribed limits and no noticeable changes have occurred since the previous testing of the craft and/or allowing modification to the same.

- 36.8.1.4** All sound measuring equipment and methods used shall be in compliance with the standards stated in the above references.
- 36.8.1.5** The following test conditions shall be complied with as closely as possible, but if unavoidable variations have to be made, these must be stated in the test report. In no instance shall the integrity of the test be compromised.
- 36.8.1.6** The noise emitted by warning devices and the like are excluded, however ancillary noise generated or associated with the operation of the craft, other than the motive device, may be measured separately or in conjunction with the test.

36.8.2 Test Conditions

- 36.8.2.1** The following instrument shall be used:
- A class 1 sound level meter and an acceptable wind screen.
 - A sound level calibrator.
 - A wind speed anemometer.
 - An engine speed tachometer.
- 36.8.2.2** Measured Quantities - "A" weighted, slow response sound level, expressed in decibels (dB).
- 36.8.2.3** Acoustic Environment - The test site shall be such that sufficient free field sound propagation exists, (ie 30m clearance from reflective surfaces).
- 36.8.2.4** There shall be no obstacles between the craft and the microphone and the area between shall be open and free from sound absorbing materials. Meteorological conditions shall be within standard acceptable limits and the wind velocity shall not exceed 5m/sec.
- 36.8.2.5** Test Course - The depth of water must be sufficient for the normal operation of the craft.
- Craft shall run either against the stress or current or in slack water.
 - A set straight line course shall be used to ascertain the acoustic measurements, as detailed:



- 36.8.2.6** Operating Conditions - The test run shall commence at sufficient distance downstream to obtain stabilised engine conditions when the craft passes the microphone. The craft shall be driven by a competent person who is mutually acceptable to the operator of the craft and the enforcement officer. The loading condition of the craft shall be stated in the report. All openings and hatches shall be set and located in their normal operational condition and the craft's engine system shall be at normal operating temperature.
- 36.8.2.7** The boat shall pass all three markers on a straight course at wide-open throttle with the engine operating at the midpoint of the manufacturer's recommended full throttle rpm range.
- 36.8.2.8** The engine speed tolerance shall be +/- 100rpm if this falls within the full throttle speed range. If a single top speed rpm is recommended, the tolerance shall be +0, -100rpm.
- 36.8.2.9** Boats which are sold with the power units installed (for example, outboards and stern drives) shall be tested in this combination. Outboard motorboats shall be tested with a motor or motors for which the boat is rated, since sound level is dependent upon boat design and construction.
- 36.8.2.10** The boat shall pass within 0.5m to 1.0m on the far side of all three markers.
- 36.8.2.11** Test Procedure - Principally that the maximum A – weighted sound pressure level indicated during the passage of the craft be retained. The sound level will be accumulated as the craft passes at right angles to the microphone and will be measured until the craft has travelled a distance of 25 m. The meter shall be set for slow response.

Two passes shall be made and the mean value of the measurements rounded to the nearest integral decibel shall be obtained. If the sound intensity is louder along one side of the craft, then the measurements shall be conducted at this side. The background noise level shall be recorded and shall be at least 10dBA lower than measured level for the boat being tested.

All craft may not be able to be recorded according to the above method and any deviation shall be in compliance with ISO **2922:2000** or ISO **14509-1:2008**. Other statistical and accumulated sound levels may also be recorded and retained for evaluation.

36.8.3 Test Report

36.8.3.1 The test report shall include a reference to the Standards and all relevant details concerning:

- The nature of the tests.
- The craft design or make, operator, engine and exhaust system.
- The test site locality, water conditions, meteorological conditions, for example temperature, and wind velocity, if relevant.
- The measurement equipment.
- The background noise level.
- The loading of the craft.
- The A-weighted sound pressure levels.
- The presence of pure tones or noise of an impulsive character.
- A conclusion, evaluating the test results and considerations.

36.8.3.2 The craft shall, upon compliance and following testing exhibit a current acoustic certificate label in a prominent place, which will be issued by the enforcement officer.

36.8.3.3 All craft shall be retested, should any modification be made to the craft or engine componentry that could alter the acoustic integrity and another certificate, upon compliance, will be issued.

REFERENCES: IEC 61672-1:2002, IEC 60942:2003, ISO 2922:2000, ISO 14509-1:2008

41 JACKS POINT



41.1

Zone Purpose

The purpose of the Jacks Point Zone is to provide for residential, rural living, commercial, community and visitor accommodation in a high quality sustainable environment comprising residential areas, an education innovation campus, two villages and a variety of recreation opportunities and community benefits including access to public open space and amenities.

The village areas and associated residential activities at Jacks Point will be sustainable in their nature, constituting mixed density development, best practice methods of waste disposal and longevity in their quality and built form. The preparation of development controls and non-regulatory design guidelines, in conjunction with provisions of the District Plan and other methods, will ensure provision for the social, economic and cultural wellbeing of the wider community, while also assisting in ecological enhancement and the seamless integration of the built and natural environment.

In addition, the zoning anticipates an 18-hole championship golf course, a luxury lodge, small-scale commercial activities, provision for community facilities, craft and winery activities, outdoor recreation and enhanced access to and enjoyment of Lake Wakatipu.

41.2

Objectives and Policies

41.2.1 Objective - Development of an integrated community, incorporating residential living, visitor accommodation, community, and small-scale commercial activities within a framework of open space and recreation amenities.

- Policies
- 41.2.1.1** Use a Structure Plan to establish the spatial layout of development within the zone and diversity of living and complementary activities, taking into account:
 - Integration of activities and servicing;
 - Landscape and amenity values;
 - Road, open space and trail networks;
 - Visibility from State Highway 6 and Lake Wakatipu.
 - 41.2.1.2** Ensure subdivision and development incorporates the design elements shown on the Structure Plan, namely roads, road connections, open space, access connections and trails.
 - 41.2.1.3** Maintain and protect views into the site when viewed from the lake, and to maintain and protect views across the site to the mountain peaks beyond when viewed from the State Highway.
 - 41.2.1.4** Ensure that residential development is not readily visible from the State Highway.
 - 41.2.1.5** Provide public access from the State Highway to the lake foreshore and to facilitate increased use and enjoyment of the margin and waters of Lake Wakatipu.

- 41.2.1.6** Provide for local biodiversity through:
- The protection and enhancement of existing ecological values, in a holistic manner;
 - Reduction in grazing around wetland areas; and
 - The provision of links between grey shrublands, wetlands and the lakeshore escarpment, including indigenous vegetation links between Activity Areas where appropriate.
- 41.2.1.7** Ensure that development within the ecologically sensitive areas of the zone results in a net environmental gain.
- 41.2.1.8** **Control the take-off and landing of aircraft within the zone.**
- 41.2.1.9** Ensure that subdivision, development and ancillary activities within the Tablelands maintain the character of the landscape.
- 41.2.1.10** Provide for farming and associated activities in appropriate areas, while ensuring that development associated with those activities does not result in over domestication of the landscape.
- 41.2.1.11** Enable mining activities which contribute to the development of the zone, provided environmental effects are appropriately managed.
- 41.2.1.12** Provide a diversity of living accommodation, including opportunities for farm and rural living at low densities.
- 41.2.1.13** Recognise the Residential (Hanley Downs) Activity Area as being appropriate to accommodate residential development at a greater scale and intensity than elsewhere in the zone.
- 41.2.1.14** Enable medium density housing development within the established areas of Jacks Point where the scale and form of built development is appropriate to the character of the Activity Area.
- 41.2.1.15** Enable the development of education, business innovation and associated activities within the Education Innovation Campus, subject to achieving a high standard of urban design.
- 41.2.1.16** Ensure the visual impacts of subdivision and development within the Residential State Highway and Education Innovation Campus Activity Areas are appropriately mitigated through landscaping and the provision of open space.
- 41.2.1.17** Provide for farming and rural living in the Farm Preserve Activity Area to enable continued rural land management together with providing a greater diversity of lot sizes that retains rural amenity and protects landscape values, while ensuring that:
- within the Farm Preserve 1 Activity Area, subdivision and development incorporates mechanisms for the protection and management of open space and native vegetation.
 - within the Farm Preserve 2 Activity Area, buildings are not visible from Lake Wakatipu and State Highway 6.
- 41.2.1.18** Enable commercial activities within the Residential (Hanley Downs) Activity Area, designed to service the needs of the local community, where they can locate along or near primary roads.

- 41.2.1.19** Enable commercial and community activities and visitor accommodation, provided residential amenity, health and safety are protected or enhanced through:
- Compatible hours of operation and noise;
 - A high standard of building design;
 - The location and provision of open space, buffers and setbacks;
 - Appropriate landscape mitigation;
 - The design of vehicle access and car parking; and
 - An appropriate scale of activity and form of building development.
- 41.2.1.20** Use residential development controls to protect privacy and amenity, provide access to sunlight, achieve design cohesion and to provide appropriate opportunities for outdoor living.
- 41.2.1.21** Provide for medium density and small lot housing subject to ensuring the scale and form of built development provides an appropriate standard of residential amenity and design.
- 41.2.1.22** Avoid industrial activities.
- 41.2.1.23** Provide for the development of lakeside activities in the Homestead Bay area, in a manner which complements and enhances amenity values.
- 41.2.1.24** Ensure substantial native revegetation of the lake foreshore and open spaces within Homestead Bay and Home site activity areas within the Tablelands.
- 41.2.1.25** Provide safe and efficient road access from State Highway 6.
- 41.2.1.26** Ensure provision of integrated servicing infrastructure, roading and vehicle access.
- 41.2.1.27** Ensure an adequate level of sewage disposal, water supply and refuse disposal services are provided which do not adversely affect water or other environmental values.

41.3

Other Provisions and Rules

41.3.1 District Wide

Attention is drawn to the following District Wide chapters. All provisions referred to are within Stage 1 of the Proposed District Plan, unless marked as Operative District Plan (ODP).

1 Introduction	2 Definitions	3 Strategic Direction
4 Urban Development	5 Tangata Whenua	6 Landscapes
24 Signs (18 ODP)	25 Earthworks (22 ODP)	26 Historic Heritage
27 Subdivision	28 Natural Hazards	29 Transport (14 ODP)
30 Energy and Utilities	31 Hazardous Substances (16 ODP)	32 Protected Trees
33 Indigenous Vegetation and Biodiversity	34 Wilding Exotic Trees	35 Temporary Activities and Relocated Buildings
36 Noise	37 Designations	Planning Maps

41.3.2 Clarification

41.3.2.1 References to the Structure Plan and to Activity Areas are references to the Jacks Point Zone Structure Plan and the Activity Areas identified on that Structure Plan.

41.3.2.2 Earthworks undertaken for the development of land associated with any subdivision shall be governed by Chapter 27: Subdivision and Development.

41.3.2.3 A permitted activity must comply with all the rules listed in the activity and standards tables, and any relevant district wide rules.

41.3.2.4 Where an activity does not comply with a rule or standard the activity status identified by the Non-Compliance Status column shall apply. Where an activity breaches more than one Standard, the most restrictive status shall apply to the Activity.

41.3.2.5 The following abbreviations are used within this Chapter.

P	Permitted	C	Controlled	RD	Restricted Discretionary
D	Discretionary	NC	Non Complying	PR	Prohibited

41.4

Rules - Activities

Table 1	Activities Located Within the Jacks Point Zone	Activity Status
41.4.1	Activities that are not listed in this table and comply with all standards	P
41.4.2	<p>Educational and Day Care Facilities</p> <p>Educational and Day Care Facilities within the (E) and R(HD) Activity Areas.</p> <p>Control is reserved to all of the following:</p> <ul style="list-style-type: none"> • Location and external appearance of buildings. • Setback from roads. • Setback from internal boundaries. • Traffic generation, access and parking. • Outdoor living space. • Street scene including landscaping. • Enhancement of ecological and natural values. • (Provision for walkways, cycle ways and pedestrian linkages. • Noise. 	C
41.4.3	<p>Buildings</p> <p>41.4.3.1 Building (including the addition, alteration or construction of buildings) located within the Lodge Activity Areas (L).</p> <p>Control is reserved to all of the following:</p> <ul style="list-style-type: none"> • The external appearance of buildings with respect to the effect on visual and landscape values of the area. • Infrastructure and servicing. • Associated earthworks and landscaping. • Access and parking. • Bulk and location. • Exterior lighting. • Any development controls and design guidelines. 	C

Table 1	Activities Located Within the Jacks Point Zone	Activity Status
	<p>41.4.3.2 Except as provided for in (41.4.3.4) below, farm buildings located within the FP-1 and FP-2 Activity Areas.</p> <p>Control is reserved to all of the following:</p> <ul style="list-style-type: none"> • The external appearance of buildings with respect to the effect on visual and landscape values of the area. • Infrastructure and servicing. • Associated earthworks and landscaping. • Access and parking. • Bulk and location. • Exterior lighting. • Visibility of the building from State Highway 6 and Lake Wakatipu. 	C
	<p>41.4.3.3 Except as provided for in (41.4.3.4) below, any residential unit in the FP-2 Activity Area and any visitor accommodation activity within the FP-1 or FP-2 Activity Areas.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • The matters listed in clause (41.4.3.2) above. • The appropriateness of any mitigation and its impact on the character of the landscape. 	RD
	<p>41.4.3.4 Any building within the Peninsula Hill Landscape Protection Area, Lake Shore Landscape Protection Area or Highway Landscape Protection Area identified on the Structure Plan.</p>	D
	<p>41.4.3.5 Within the BFA any boat ramp, jetty, breakwater or other buildings and associated parking and boat trailer parking.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Effects on natural character. • Effects on landscape and amenity values. • Effects on public access to and along the lake margin. • External appearance, colours and materials. • Location. 	RD

Table 1	Activities Located Within the Jacks Point Zone	Activity Status
	<p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • External appearance. • Residential amenity values. • Access and car parking. • Associated earthworks. • Landscaping. <p>41.4.6.3 Except that this rule shall not apply to:</p> <ol style="list-style-type: none"> a. A single residential unit on any site contained within a separate computer freehold register. b. Residential units located on sites smaller than 550m² created pursuant to subdivision. 	
41.4.7	<p>Commercial Activities, Community Activities and Visitor Accommodation</p> <p>41.4.7.1 Commercial activities and community activities located within the EIC Activity Area, including the addition, alteration or construction of associated buildings.</p> <p>Control is reserved to all of the following:</p> <ul style="list-style-type: none"> • Location, scale and external appearance of buildings. • Setback from roads. • Setback from internal boundaries. • Traffic generation. • Vehicle access, street layout and car parking. • Street scene including landscaping. • Enhancement of ecological and natural values. • Provision for walkways, cycle ways and pedestrian linkages. • Scale of the activity. • Noise. • Hours of operation. • State Highway Mitigation in the locations shown on the Structure Plan. <p>41.4.7.2 Commercial activities, community activities and visitor accommodation, located within the R(HD) and R(SH-HD) Activity Areas, including the addition, alteration or construction of associated buildings.</p> <p>Discretion is restricted to all of the matters listed in clause 41.4.7.1 above.</p>	<p>C</p> <p>RD</p>

Table 1	Activities Located Within the Jacks Point Zone	Activity Status
41.4.8	<p>Sale of Liquor</p> <p>Premises licensed for the sale of liquor (including both off-licenses and on-licenses).</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Location. • Scale of the activity. • Residential amenity values. • Noise. • Hours of operation. • Car parking and vehicle generation. 	RD
41.4.9	<p>Structure Plan - Activities</p> <p>Any activity which is not provided for within the list of activities below or which is not provided a specific activity status through any other rule within Rule 41.5 Table 2 - Standards for Activities:</p> <p>41.4.9.1 Residential Activities Area (R) – the use of this area is restricted to residential activities.</p> <p>41.4.9.2 Residential State Highway R(SH) – the use of this area is restricted to residential activities and for the mitigation of development from the State Highway.</p> <p>41.4.9.3 Village Area (V) – The use of this area is restricted to residential and visitor accommodation activities including bars, restaurants, theatres, conference, cultural and community facilities and office and administration activities ancillary to the above activities, small-scale commercial activities, health activities, educational activities, office and administration activities, and indoor and outdoor recreation facilities.</p> <p>41.4.9.4 Education Precinct (E) – The use of this area is restricted to Educational and Day Care Facilities.</p> <p>41.4.9.5 Education Innovation Campus (EIC) – The use of this area is restricted to technology based activities including commercial and medical research, laboratories, training, educational facilities, specialist health care and associated administrative, office, accommodation, retailing and recreation facilities.</p> <p>41.4.9.6 Lodge Activity Area (L) - the use of this area is restricted to visitor accommodation activities, restaurants and conference facilities.</p> <p>41.4.9.7 Home Site Activity Area (HS) - the use of this area is restricted to residential activities with a maximum of one residential unit per HS Activity Area.</p> <p>41.4.9.8 Farm Preserve (FP) – Activities in this area are limited to farming, farm buildings, fencing, trail formation, farm access tracks, recreation, mining, residential and visitor accommodation activities.</p> <p>41.4.9.9 Wetland (W) – Structures are restricted to those necessary to develop pedestrian access (e.g. boardwalks), fences, or other structures relating to the protection and enhancement of biodiversity and ecological values.</p>	D

Table 1	Activities Located Within the Jacks Point Zone	Activity Status
	<p>41.4.9.10 Open Space Golf (OSG) – the use of this area is restricted to the development and operation of golf courses, including associated earthworks, green keeping, driving range, administrative offices, mining, sales and commercial instruction.</p> <p>41.4.9.11 Open Space Landscape (OSL) –activities in this area are limiting to farming, together with farm buildings, fencing, trail formation, mining, farm access tracks and recreation activities.</p> <p>41.4.9.12 Open Space Residential Amenity (OSA) – the use of this area is restricted to recreation amenities, playgrounds, landscaping, pedestrian and cycle trails, lighting, stormwater retention and underground services.</p> <p>41.4.9.13 Open Space - Horticultural (OSH) - the use of this area is restricted to horticultural activities and accessory buildings and activities, and residential activities.</p> <p>41.4.9.14 Open Space - Foreshore (OSF) - the use of this area is restricted to the regeneration of native endemic species over 80% of the land area, and retention of open space.</p> <p>41.4.9.15 Open Space - Residential (OSR) - the use of this area is restricted to 12 low level, low impact residential units set within a regenerating foreshore environment.</p> <p>41.4.9.16 Farm Buildings and Craft Activity Area (FBA) - the use of this area is limited to the existing residence, farm buildings and buildings and activities associated with craft and farming related activities, retail sales of goods produced or reared on site, a farm stay and a bed and breakfast operation.</p> <p>41.4.9.17 Boating Facilities Activity Area (BFA) - the use of this area is limited to a double boat ramp, jetty, a weather protection feature or breakwater, a boat shed and associated boat/trailer/car parking and public facilities, provided that all facilities are available for public use.</p>	
41.4.10	Factory Farming	NC
41.4.11	Forestry Activities All forestry activities, excluding harvesting of existing forestry.	NC
41.4.12	Mining Activities With the exception of the mining of rock and/or aggregate and/or gravel provided for by Rule 41.4.5.	NC
41.4.13	Industrial Activities	NC
41.4.14	<p>Informal Airports</p> <p>41.4.14.1 Informal Airports limited to the use of helicopters.</p> <p>41.4.14.2 The establishment and operation of all other Airport Activity or Aerodrome, including Informal Airports used by fixed wing aircraft.</p>	<p>D</p> <p>NC</p>
41.4.15	Informal Airports for emergency landings, rescues, fire-fighting and activities ancillary to farming activities.	P
41.4.16	Landfill	NC
41.4.17	Panelbeating, spraypainting, motor vehicle, repair of dismantling, fibreglassing, sheet metal work, bottle or scrap storage, motorbody building, fish or meat processing, or any activity requiring an Offensive Trade Licence under the Health Act 1956.	PR

Table 2	Standards for activities located in the Jacks Point Zone	Non-compliance Status
	<p>41.5.2.3 Within the Lakeshore Landscape Protection Area (refer Structure Plan) the planting and/or cultivation of any tree or shrub shall be indigenous and characteristic of the Lake Wakatipu foreshore (i.e. broadleaf forest, grey shrubland and tussock grassland plant communities).</p> <p>41.5.2.4 Within the Tablelands (refer Structure Plan), there shall be no exotic vegetation planted and/or cultivated, with the exception of:</p> <ol style="list-style-type: none"> a. grass species if local and characteristic of the area; and b. other vegetation if it is: <ul style="list-style-type: none"> • less than 0.5 metres in height; and • less than 20 square metres in area; and • within 10 metres of a building; and • intended for domestic consumption. <p>41.5.2.5 No buildings shall be erected within a Homesite Activity Area (HS Activity Area) unless and until an area as specified within this rule has been re-vegetated with native vegetation.</p> <p>The area required to be re-vegetated for the purposes of this rule shall be the greater of 3,000m² or 20 per cent of the area of the lot or title within which the Homesite Activity Area is situated, whichever is greater. For the purposes of this rule no account shall be taken of any native vegetation existing at the date of application for subdivision consent to create the lot or title within which the Homesite Activity Area is located.</p> <p>41.5.2.6 On any site within a Residential Jacks Point Activity Area there shall be no shrub and tree planting with less than 75% of the species identified on the Jacks Point plant list contained within Part 41.8. Percentages are in terms of overall plant numbers.</p> <p>Discretion is restricted to any effects on nature conservation values.</p> <p>41.5.2.7 Within the OSR Activity Area, at least 50% of any site shall be planted in native vegetation, prior to building.</p> <p>Discretion is restricted to any effects on nature conservation values.</p> <p>41.5.2.8 Anywhere within the zone, there shall be no planting and/or growing of the following tree species:</p> <ul style="list-style-type: none"> • European larch (<i>Larix decidua</i>) • Sycamore <p>Also refer to the District Wide Chapter 34 Wilding Exotic Trees.</p>	<p>D</p> <p>D</p> <p>D</p> <p>RD</p> <p>RD</p> <p>PR</p>

Table 2	Standards for activities located in the Jacks Point Zone	Non-compliance Status
	<p>41.5.2.9 Except as provided for in (41.5.2.6) above, any native vegetation required to be planted within this Zone shall:</p> <ul style="list-style-type: none"> a. Include species appropriate to the ecosystems of the area being planted. b. Be capable of reaching 80% canopy closure for the ecosystem type being planted. c. Have eradicated any invasive plant pests the time of planting. d. Be maintained, with any plants that die or are diseased replaced. <p>Discretion is restricted to any effects on nature conservation values.</p>	RD
41.5.3	<p>Structure Plan</p> <p>41.5.3.1 Development shall be undertaken in general accordance with the Structure Plan in Part 41.7. For the purposes of interpreting this rule, the following shall apply:</p> <ul style="list-style-type: none"> a. A variance of up to 120m from the location and alignment shown on the Structure Plan of the Primary Roads, and their intersections with State Highway 6, shall be acceptable. b. Public Access Routes and Secondary Roads may be otherwise located and follow different alignments provided that any such alignment enables a similar journey. <p>41.5.3.2 Development shall facilitate a road connection at each Key Road Connection shown on the Structure Plan to enable vehicular access to roads which connect with the Primary Roads, provided that a variance of up to 50m from the location of the connection shown on the Structure Plan shall be acceptable.</p> <p>41.5.3.3 Open Spaces are shown indicatively, with their exact location and parameters to be established through the subdivision process. Development prior to such subdivision occurring, which would preclude the creation of these open spaces, shall be deemed to be contrary to this rule.</p> <p>41.5.3.4 Within any open space area created by subdivision, in accordance with (Rules 41.5.3.3 and 27.8.9.1), there shall be no building.</p>	D

Table 2	Standards for activities located in the Jacks Point Zone	Non-compliance Status
	<p>b. All other Activity Areas:</p> <ul style="list-style-type: none"> • The maximum height of any cut shall not exceed 2.4 metres. • The maximum height of any fill shall not exceed 2 metres. • The vertical height of any cut or fill shall not be greater than the distance of the top of the cut or the toe of the fill from the site boundary (see Interpretative Diagram 6 of the Earthworks Chapter of the Operative District Plan), except where the cut or fill is retained, in which case it may be located up to the boundary, if less or equal to 0.5 metre in height. <p>41.5.4.3 Fill</p> <p>a. All fill for residential building platforms and associated retaining walls is to be in accordance with the requirements of NZS 4404:2010 and/or NZS 4431:1989 as appropriate.</p> <p>41.5.4.4 Environmental Protection Measures</p> <p>a. Any person carrying out earthworks shall implement sediment and erosion control measures to avoid sediment effects beyond the boundary of the site.</p> <p>b. Any person carrying out earthworks shall implement appropriate dust control measures to avoid nuisance effects of dust beyond the boundary of the site.</p> <p>c. Areas of exposed soil are to be vegetated / re-vegetated within 12 months from the completion of works.</p> <p>41.5.4.5 Water bodies</p> <p>a. Earthworks within 7m of the bed of any water body shall not exceed 20m³ in total volume, within one consecutive 12 month period.</p> <p>b. Any material associated with earthworks activity shall not be positioned within 7m of the bed of any water body or where it may dam, divert or contaminate water.</p> <p>c. Earthworks shall not:</p> <ul style="list-style-type: none"> • cause artificial drainage of any groundwater aquifer; • cause temporary ponding of any surface water. <p>41.5.4.6 Cultural heritage and archaeological sites</p> <p>a. Earthworks shall not modify, damage or destroy any waahi tapu, waahi taonga or identified feature in Chapter 26, or any archaeological site.</p>	

Table 2	Standards for activities located in the Jacks Point Zone	Non-compliance Status
	<p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • The nature and scale of the earthworks • Environmental protection measures • Remedial works and revegetation • The effects on landscape and visual amenity values • The effects on land stability and flooding • The effects on water bodies • The effects on cultural and archaeological sites • Noise 	
<p>41.5.5</p>	<p>Setbacks from Roads and Internal Boundaries</p> <p>41.5.5.1 Buildings or structures shall be set back a minimum of 20m from the zone boundary, except this rule shall not apply to the Boating Facilities (BFA) Activity Area.</p> <p>41.5.5.2 Buildings for all activities, except for buildings located on sites smaller than 550m² and created pursuant to subdivision, shall be subject to the following internal setback rules:</p> <ol style="list-style-type: none"> a. Two setbacks of 4.5m, with all remaining setbacks of 2m; or b. One setback of 6m, one setback of 3.5m and all other setbacks of 2m; <p>41.5.5.3 Except that:</p> <ol style="list-style-type: none"> a. Any building may encroach into a setback by up to 1m for an area no greater than 6m² provided the component of the building infringing the setback has no windows or openings; b. Accessory buildings for residential activities, including garages, may encroach into the setback where they are no more than 3.5m in height and where no windows or openings are orientated toward an internal boundary; c. No setbacks are required when buildings share a common wall at the boundary. <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Bulk, height and proximity of the building façade to the boundary. • The impact on neighbours' amenity values. <p>41.5.5.4 In the Residential (Hanley Downs) Activity Area:</p> <ol style="list-style-type: none"> a. For commercial activities, community activities and visitor accommodation, buildings shall be set back at least 3 m from any road boundary. b. For all other activities, except for residential activities on sites smaller than 550m² and created by subdivision, buildings shall be set back 4.5m from any road boundary. 	<p>RD</p>

Table 2	Standards for activities located in the Jacks Point Zone	Non-compliance Status
	<p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Bulk, height. • Proximity on residential amenity values. • Loss of daylight. • Access to sunlight. 	
41.5.6	<p>Access to the State Highway</p> <p>41.5.6.1 Access from State Highway 6 shall be only at the intersections at Maori Jack Road and Woolshed Road, as shown on the Structure Plan.</p> <p>41.5.6.2 No more than 500 residential units may be built within the R(HD) and R(SH-HD) Activity Areas without the Woolshed Road intersection being completed and available for use.</p> <p>Discretion is restricted to the safe and efficient functioning of the road network.</p>	RD
41.5.7	<p>Fencing</p> <p>41.5.7.1 There shall be no fences or walls within the boundary of any lot or title within the Tablelands (refer Structure Plan) outside of any Homesite Activity Area (HS Activity Area), except for fencing between stock managed areas and areas retired from stock and for the purpose of demarcating private land from land accessible to the public as a result of the creation of public walkways additional to those walkways identified as “Public Access Route” on the Structure Plan. Any such fencing shall be post and wire only.</p> <p>41.5.7.2 In the R(HD) and R(HD-SH) Activity Areas, except for sites smaller than 550m² and created by subdivision, fences located within a setback from a road shall be no higher than 1.2m in height, except that a fence of up to 1.8 m in height may be erected within the road setback for a maximum of 1/2 of the length of the road boundary of the site.</p>	D

Table 2	Standards for activities located in the Jacks Point Zone	Non-compliance Status																																		
41.5.8	<p>Density</p> <p>41.5.8.1 The average density of residential units within each of the Residential Activity Areas shall be as follows:</p> <table border="0"> <tr><td>R(JP) – 1</td><td>13 – 18 per Ha</td></tr> <tr><td>R(JP) – 2A</td><td>13 - 33 per Ha</td></tr> <tr><td>R(JP) – 2B</td><td>14 - 15 per Ha</td></tr> <tr><td>R(JP) – 3</td><td>14 per Ha</td></tr> <tr><td>R(JP-SH) – 1</td><td>10 per Ha</td></tr> <tr><td>R(JP-SH) – 2</td><td>9 per Ha</td></tr> <tr><td>R(JP-SH) – 3</td><td>5 per Ha</td></tr> <tr><td>R(JP-SH) – 4</td><td>5 - 12 per Ha</td></tr> <tr><td>R(HD-SH) – 1</td><td>12 - 22 per Ha</td></tr> <tr><td>R(HD-SH) – 2</td><td>2 - 10 per Ha</td></tr> <tr><td>R(HD) - A</td><td>17 - 26 per Ha</td></tr> <tr><td>R(HD) – B</td><td>17 - 26 per Ha</td></tr> <tr><td>R(HD) - C</td><td>15 - 22 per Ha</td></tr> <tr><td>R(HD) - D</td><td>17 - 26 per Ha</td></tr> <tr><td>R(HD) - E</td><td>25 - 45 per Ha</td></tr> <tr><td>R(HD) - F</td><td>2 - 10 per Ha</td></tr> <tr><td>R(HD) – G</td><td>2 - 10 per Ha</td></tr> </table> <p>Density shall be calculated on the net area of land available for development and excludes land vested or held as reserve, open space, public access routes or roading and excludes sites used for non-residential activities. If part of an Activity Area is to be developed or subdivided, compliance must be achieved within that part and measured cumulatively with any preceding subdivision or development which has occurred with that Activity Area</p> <p>41.5.8.2 Except that this rule shall not apply to:</p> <p>a. A single residential unit on any site contained within a separate certificate of title</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Residential amenity values. • Traffic, access, parking. • Adequacy of infrastructure. 	R(JP) – 1	13 – 18 per Ha	R(JP) – 2A	13 - 33 per Ha	R(JP) – 2B	14 - 15 per Ha	R(JP) – 3	14 per Ha	R(JP-SH) – 1	10 per Ha	R(JP-SH) – 2	9 per Ha	R(JP-SH) – 3	5 per Ha	R(JP-SH) – 4	5 - 12 per Ha	R(HD-SH) – 1	12 - 22 per Ha	R(HD-SH) – 2	2 - 10 per Ha	R(HD) - A	17 - 26 per Ha	R(HD) – B	17 - 26 per Ha	R(HD) - C	15 - 22 per Ha	R(HD) - D	17 - 26 per Ha	R(HD) - E	25 - 45 per Ha	R(HD) - F	2 - 10 per Ha	R(HD) – G	2 - 10 per Ha	RD
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Table 2	Standards for activities located in the Jacks Point Zone	Non-compliance Status																				
41.5.9	<p>Scale of Commercial Activity</p> <p>41.5.9.1 The maximum net floor area (as defined) for any single commercial activity shall be 200m², except that this does not apply within the EIC Activity Area.</p> <p>41.5.9.2 The maximum net floor area for any single retail activity within the EIC Activity Area shall be 200m².</p> <p>41.5.9.3 The total floor space of all commercial activities in the R(HD) A to E Activity Areas shall not exceed 550m².</p>	D D NC																				
41.5.10	<p>Building Colours</p> <p>Any building shall result in:</p> <p>41.5.10.1 At least 70% of the total painted or galvanised external surface of buildings (excluding roofs and windows) with a reflectance value of between 0 and 35%</p> <p>41.5.10.2 Roof colours with a light reflectance value of 20% or less, and in the range of browns, greys and black</p>	D																				
41.5.11	<p>Residential Units</p> <p>In the OSH, OSR, FBA and V(HB) Activity Areas, no residential units may be constructed until 80% of the freehold land within the Open Space Foreshore Activity Area has been planted with native endemic species.</p>	NC																				
41.5.12	<p>Building Height</p> <p>41.5.12.1 In the Lodge (L) Activity Area, the maximum height of any building shall be 5m.</p> <p>Council's Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> • Visual dominance. • External Appearance. • The scale and extent of the portions that exceed 5m. <p>41.5.12.2 The maximum height of buildings shall be:</p> <table border="0" style="width: 100%;"> <tr> <td style="padding-left: 20px;">a Village (V) Activity Areas</td> <td style="text-align: right;">10m</td> </tr> <tr> <td style="padding-left: 20px;">b Farm buildings</td> <td style="text-align: right;">10m</td> </tr> <tr> <td style="padding-left: 20px;">c Residential (R) Activity Areas</td> <td style="text-align: right;">8m</td> </tr> <tr> <td style="padding-left: 20px;">d Farm Buildings and Craft (FBA) Activity Area</td> <td style="text-align: right;">8m</td> </tr> <tr> <td style="padding-left: 20px;">e Farm Preserve (FP-1) and (FP-2) Activity Areas</td> <td style="text-align: right;">8m</td> </tr> <tr> <td style="padding-left: 20px;">f Education Precinct (E) and Education Innovation Campus (EIC) Activity Areas</td> <td style="text-align: right;">10m</td> </tr> <tr> <td style="padding-left: 20px;">g Open Space Golf (OSG) Activity Area</td> <td style="text-align: right;">8m</td> </tr> <tr> <td style="padding-left: 20px;">h Lodge (L) Activity Areas</td> <td style="text-align: right;">7.5m</td> </tr> <tr> <td style="padding-left: 20px;">i Homesite Activity Area</td> <td style="text-align: right;">5m</td> </tr> <tr> <td style="padding-left: 20px;">j All other buildings and structures (excluding temporary filming towers erected during an event and for no more than 7 days either side of an event).</td> <td style="text-align: right;">4m</td> </tr> </table>	a Village (V) Activity Areas	10m	b Farm buildings	10m	c Residential (R) Activity Areas	8m	d Farm Buildings and Craft (FBA) Activity Area	8m	e Farm Preserve (FP-1) and (FP-2) Activity Areas	8m	f Education Precinct (E) and Education Innovation Campus (EIC) Activity Areas	10m	g Open Space Golf (OSG) Activity Area	8m	h Lodge (L) Activity Areas	7.5m	i Homesite Activity Area	5m	j All other buildings and structures (excluding temporary filming towers erected during an event and for no more than 7 days either side of an event).	4m	RD NC
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Table 2	Standards for activities located in the Jacks Point Zone	Non-compliance Status
	<p>41.5.12.5 For:</p> <ol style="list-style-type: none"> Any non-residential activity consented under Rule 41.4.9. Any medium density residential housing development consented under Rule 41.4.6. Sites smaller than 550m² created by subdivision. <p>the maximum height of buildings may exceed the maximum height stated in (a) above, up to a maximum of 3 storeys or 10m (whichever is lesser).</p> <p>Notwithstanding the height limit in Clause (a) above, for any commercial activity located within the EIC Activity Area, consented under Rule 41.4.7, the maximum height of any building shall be 15m.</p>	NC
41.5.13	<p>Glare</p> <p>41.5.13.1 All fixed lighting shall be directed away from adjacent roads and properties.</p> <p>41.5.13.2 No activity shall result in a greater than 3.0 lux spill, horizontal and vertical, of light onto any property located outside of the Zone, measured at any point inside the boundary of the adjoining property.</p>	NC
41.5.14	<p>Servicing</p> <p>41.5.14.1 All dwellings shall connect to reticulated infrastructure for the provision of a water supply, wastewater disposal, power and telecommunications. Except this rule does not apply to dwellings located within Activity Areas FP-1 and FP-2.</p> <p>41.5.14.2 All services, with the exception of stormwater systems, shall be reticulated underground.</p>	NC
41.5.15	<p>Building Coverage</p> <p>41.5.15.1 On any site within the R(JP), R(JP-SH) and E Activity Areas, buildings shall not exceed a maximum site coverage of 45%.</p> <p>Except, in relation to any medium density residential housing development consented under Rule 41.4.6 where a maximum site coverage of 55% shall apply.</p> <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> Urban design. Effects on amenity values for neighbours and the character of the Activity Area. 	RD

Table 2	Standards for activities located in the Jacks Point Zone	Non-compliance Status
	<p>41.5.15.2 On any site within the EIC, R(HD), R(HD-SH), buildings shall not exceed a maximum building coverage of 50%, except:</p> <ol style="list-style-type: none"> Residential activity consented under Rule 41.4.6 medium density residential housing, where a maximum site coverage of 70% shall apply; Any non-residential activity consented under Rule 41.4.7 where a maximum site coverage of 70% shall apply; This rule shall not apply to sites smaller than 550m² created by subdivision. <p>Discretion is restricted to all of the following:</p> <ul style="list-style-type: none"> Effects on amenity values for neighbours; and, Stormwater management. <p>41.5.15.3 Within the Village Activity Areas site coverage shall not exceed 60%.</p> <p>Discretion is restricted to the matters listed in clause (41.5.15.2) above.</p> <p>41.5.15.4 Within the Village (Homestead Bay) Activity Area, building coverage shall not exceed a maximum of 21,500 m².</p>	<p>RD</p> <p>RD</p> <p>NC</p>
41.5.16	<p>Outside storage and activities</p> <p>41.5.16.1 No goods, materials or equipment shall be stored outside a building, except for vehicles associated with the activity parked on the site overnight.</p> <p>41.5.16.2 All manufacturing, altering, repairing, dismantling or processing of any materials, goods or articles shall be carried out within a building except in relation to farming.</p> <p>Except within the Village Activity Areas, where outside storage and activities are permitted.</p>	NC
41.5.17	<p>Location of Retail Activities</p> <p>41.5.17.1 Retail activities within the R(HD) Activity Areas shall be located within 120 metres of the Primary Road shown on the Structure Plan or within 120 metres of its final formed location.</p>	NC
41.5.18	<p>Temporary and Permanent Storage of Vehicles</p> <p>Within the Tablelands (refer Structure Plan), but excluding the Homesite and Lodge Activity Areas (HS) and (L) Activity Areas, there shall be no temporary or permanent siting of:</p> <ul style="list-style-type: none"> Motor vehicles, trailers, caravans, boats or similar objects; Storage containers, workshops, offices, sheds, huts or similar structures (other than public toilets and shelter); and Scaffolding or similar construction materials; <p>Except for temporary filming towers erected during an event and for no more than 7 days either side of an event.</p>	NC
41.5.19	<p>Wetlands</p> <p>There shall be no development, landscaping and/or earthworks within 7 metres of any Wetland area identified on the Structure Plan.</p>	NC

41.6

Non-Notification of Applications

41.6.1 Any application for resource consent for controlled activities shall not require the written consent of other persons and shall not be notified or limited-notified.

41.6.2 Any application for resource consent for the following restricted discretionary activities shall be considered without public notification but notice shall be served on those persons considered to be adversely affected if the written approval has not been obtained:

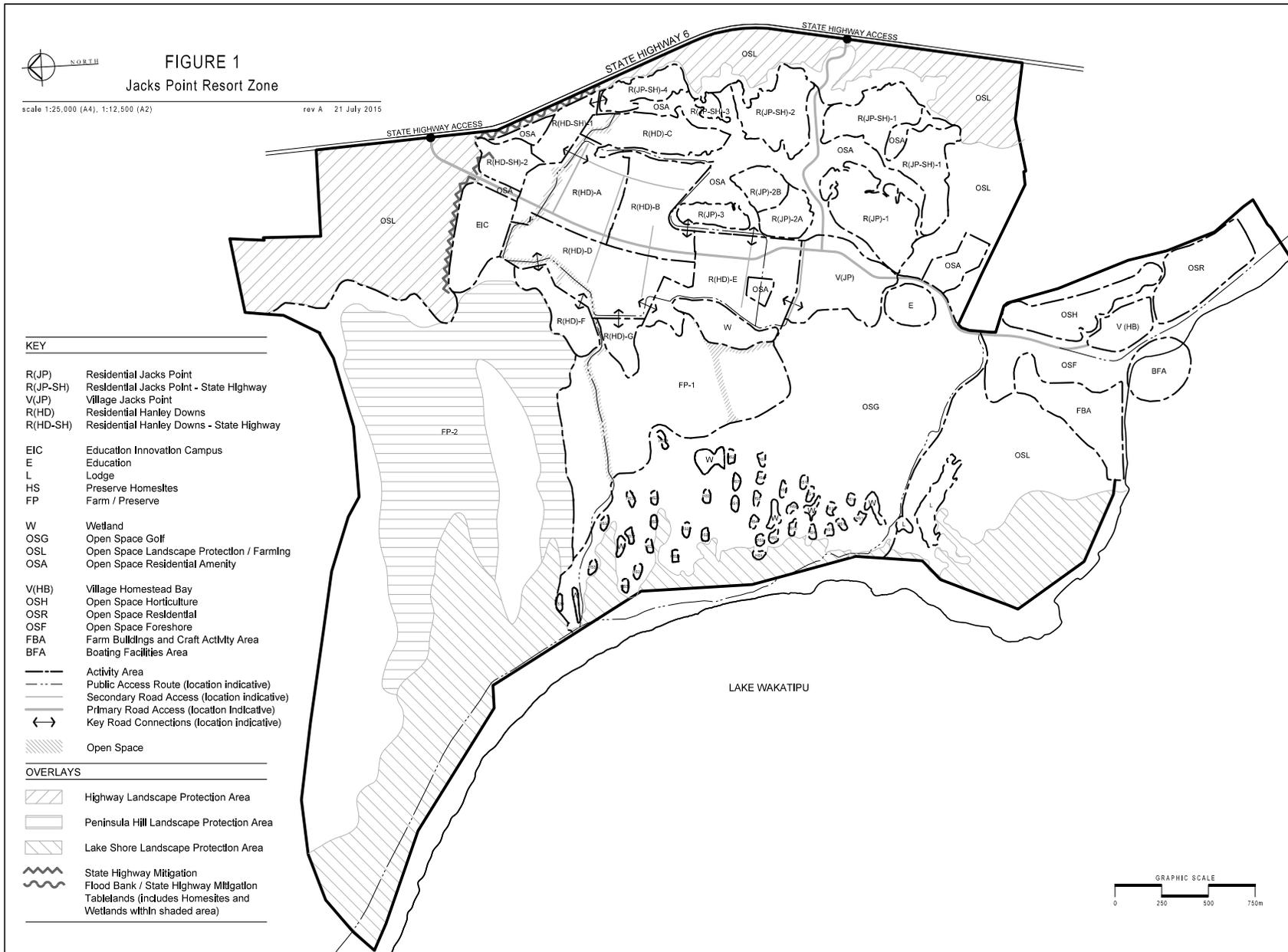
41.6.2.1 Rule **41.4.3.3** Residential Units in the FP-2 Activity Area and Visitor Accommodation within FP-1 and FP – 2 Activity Areas

41.6.2.2 Rule **41.4.7** Commercial activities, community and visitor accommodation

41.6.2.3 Rule **41.4.8** Sale of Liquor

41.6.2.4 Rule **41.5.5** Setbacks from Roads and Internal Boundaries

41.6.2.5 Rule **41.5.6** Access to the State Highway, only in respect of the New Zealand Transport Agency



41.8

Jacks Point Plant List

Trees

Botanical Name	Common Name	Sun	Mid Sun	Shade	Moist	Dry	Sheltered	Exposed
<i>Aristotelia serrata</i>	Wineberry	x	x		x	x		x
<i>Carpodetus serratus</i>	Putaputaweta / marbleleaf	x	x		x		x	
<i>Coprosma linariifolia</i>	Mikimiki	x	x		x	x		x
<i>Cordyline australis</i>	Ti kouka / cabbage tree	x	x		x	x		x
<i>Fuchsia excorticata</i>	Kotukutuku / tree fuchsia		x		x		x	
<i>Elaeocarpus hookerianus</i>	Pokaka		x		x		x	
<i>Griselinia littoralis</i>	Kapuka / broadleaf	x	x		x	x		x
<i>Hoheria lyallii</i>	Mountain ribbonwood	x			x			x
<i>Melicytus lanceolatus</i>	Mahoe wao	x	x		x		x	
<i>Melicytus ramiflorus</i>	Mahoe / whiteywood	x	x		x	x		x
<i>Metrosideros umbellata</i>	Southern rata	x	x		x	x		x
<i>Myrsine australis</i>	Mapou	x	x	x	x	x		x
<i>Nothofagus fusca</i>	Red beech	x	x		x	x	x	
<i>Nothofagus solandri</i> var. <i>cliffortioides</i>	Mountain beech	x	x		x	x	x	
<i>Pennantia corymbosa</i>	Kaikomako	x	x		x	x		x
<i>Pittosporum eugenioides</i>	Tarata / lemonwood	x	x		x	x		x
<i>Pittosporum tenuifolium</i>	Kohuhu	x	x		x	x		x
<i>Podocarpus hallii</i>	Hall's Totara	x	x		x	x		x
<i>Prumnopitys taxifolia</i>	Matai		x	x	x	x	x	
<i>Pseudopanax crassifolius</i>	Lancewood	x	x		x	x		x
<i>Sophora microphylla</i>	Kowhai	x	x		x	x	x	

Shrubs

Botanical Name	Common Name	Sun	Mid Sun	Shade	Moist	Dry	Sheltered	Exposed
<i>Aristotelia fruticosa</i>	Mountain wineberry	x			x			x
<i>Carmichaelia petriei</i>	NZ broom	x	x	x	x			x
<i>Coprosma crassifolia</i>	NZ Coprosma	x	x		x	x		x
<i>Coprosma lucida</i>	Shining Karamu		x	x	x	x		x
<i>Coprosma propinqua</i>	Mingimingi	x			x	x		x
<i>Coprosma rugosa</i>	Needle-leaved Mt Coprosma	x	x		x	x		x
<i>Corokia cotoneaster</i>	Korokia	x	x		x	x		x
<i>Cyathodes juniperina</i>	Mingimingi	x	x			x		x
<i>Discaria toumatou</i>	Matagouri	x			x	x		x
<i>Dracophyllum longifolium</i>	Inaka	x	x			x		x
<i>Dracophyllum uniflorum</i>	Turpentine shrub	x	x		x			x
<i>Gaultheria antipoda</i>	Tall snowberry	x		x	x	x	x	
<i>Hebe cupressoides</i>	Cypress Hebe	x				x		x
<i>Hebe odora</i>		x			x			x
<i>Hebe rakaiensis</i>		x			x	x		x
<i>Hebe salicifolia</i>	South Island Koromiko	x			x			x
<i>Hebe subalpina</i>		x			x	x		x
<i>Leptospermum scoparium</i>	Manuka	x	x		x	x		x
<i>Melicytus alpinus</i>	Porcupine shrub	x	x		x	x		x
<i>Myrsine divaricata</i>	Weeping mapou	x	x		x	x		x
<i>Olearia arborescens</i>	Southern Tree Daisy	x	x		x	x		x
<i>Olearia avicenniifolia</i>	Tree Daisy	x				x		x
<i>Olearia bullata</i>		x			x	x		x
<i>Olearia cymbifolia</i>		x	x		x	x		x
<i>Olearia fragrantissima</i>		x				x	x	
<i>Olearia hectori</i>		x			x	x		x
<i>Olearia lineata</i>	Tree Daisy	x	x		x	x		x
<i>Olearia nummulariaefolia</i>	Tree Daisy	x				x		x
<i>Olearia odorata</i>	Tree Daisy	x			x		x	
<i>Ozothamnus sp.</i>	Cottonwood	x			x	x		x
<i>Pimelea aridula</i>	NZ daphne	x			x	x		x
<i>Pseudopanax colensoi</i> var. <i>ternatus</i>	Mountain three finger		x	x	x	x		x

Grasses

Botanical Name	Common Name	Sun	Mid Sun	Shade	Moist	Dry	Sheltered	Exposed
<i>Aciphylla aurea</i>	Golden speargrass	x				x		x
<i>Aciphylla glaucescens</i>	Blue speargrass	x				x		x
<i>Astelia fragrans</i>	Bush lily		x	x	x		x	
<i>Astelia nervosa</i>	Mountain Astelia		x	x	x	x		x
<i>Carex coriacea</i>	NZ swamp sedge	x			x			x
<i>Carex maorica</i>	Carex	x	x		x			x
<i>Carex secta</i>	Purei	x	x		x			x
<i>Chionochloa conspicua</i>	Bush tussock	x	x		x	x		x
<i>Chionochloa rigida</i>	Narrow-leaved snow tussock	x			x	x		x
<i>Chionochloa rubra</i>	Red Tussock	x			x	x		x
<i>Cortaderia richardii</i>	South Island Toetoe	x			x	x		x
<i>Festuca novae zelandiae</i>	Hard tussock	x				x		x
<i>Juncus distegus</i>	Wiwi		x		x			x
<i>Juncus gregiflorus</i>	NZ soft rush		x		x			x
<i>Juncus sarophorus</i>	Wiwi	x	x		x			x
<i>Phormium cookianum</i>	Mountain flax	x			x	x		x
<i>Phormium tenax</i>	Harakeke/swamp flax	x			x	x		x
<i>Poa cita</i>	Silver tussock	x			x	x		x
<i>Schefflera digitata</i>	Seven finger	x	x		x	x	x	
<i>Schoenus pauciflorus</i>	Bog rush	x			x		x	
<i>Typha orientalis</i>	Raupo / bullrush	x			x			x