

20 December 2024

Auckland Surf Park
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By email: s 9(2)(a)

Dear Magdalena,

Auckland Surf Park Stage 2 – Noise Effects

1.0 Introduction

Styles Group has been engaged by Auckland Surf Park (**ASP**) to assess the potential noise effects and reverse sensitivity effects arising from the proposed development in Stage 2 of the ASP that is relatively close to the North Shore Aerodrome. The proposed development is depicted in the Master Plan that accompanies the application.

We have been involved in the development of the Master Plan which has resulted in some changes to the location of Activities Sensitive to Aircraft Noise¹ (**ASAN**) in relation to the North Shore Aerodrome.

Parts of the site are within the Airport's aircraft noise boundaries as depicted in the AUP. Chapter D24 of the Auckland Unitary Plan - Operative in Part (**AUP**) includes land use controls to manage the subdivision and development of land and establishment of Activities Sensitive to Aircraft Noise (**ASAN**) inside the Outer Control Boundary².

The land use controls in Chapter D24 are generally consistent with the recommended land use planning measures in New Zealand Acoustical Standard 6805:1992 *Airport Noise Management and Land Use Planning* (**NZS6805**).

ASAN are defined in Chapter J1 of the AUP as:

ASAN means: Any dwellings, boarding houses, marae, papakāinga, integrated residential development, retirement villages, supported residential care, care centres, education facilities, tertiary education facilities, hospitals, and healthcare facilities with an overnight stay facility.

This advice identifies the aircraft noise levels across the Site and provides high-level recommendations to ensure the proposed resource consent conditions will deliver the level of

¹ ASAN are defined by Chapter J1 of the AUP to mean "Any dwellings, boarding houses, marae, papakāinga, integrated residential development, retirement villages, supported residential care, care centres, education facilities, tertiary education facilities, hospitals, and healthcare facilities with an overnight stay facility".

² Land exposed to aircraft noise levels greater than 55 dB L_{dn}

acoustic amenity prescribed by Chapter D24 of the AUP for the development of land exposed to aircraft noise from the Airport.

2.0 Proposed Stage 2 Development

The consented Stage 1 masterplan established the Surf Lagoon, a Data Centre, and a Solar Farm, alongside the development of eco-cabins and stream regeneration.

Proposed Stage 2 of the Surf Park Development includes a mix of residential, village-centre, a live-work precinct and a network of transport infrastructure. The residential development typologies are the only activity defined as ASAN according to the AUP.

Hotels (visitor accommodation) are provided for in the Master Plan, however visitor accommodation is not defined as ASAN according to the AUP.

The Master Plan demonstrates that all potentially noise-sensitive land uses are located furthest from the North Shore Aerodrome.

3.0 North Shore Aerodrome and the AUP

The North Shore Aerodrome is located west of Stage 2. The North Shore Aerodrome generates noise effects that extend beyond its own boundaries and across surrounding land uses. Noise-related land-use controls have been developed in the AUP to manage these effects.

The land use controls around North Shore Aerodrome have been developed according to the general principles of New Zealand Standard NZS6805:1992 *Airport Noise Management and Land Use Planning* (**NZS6085**) with a degree of customisation for the local situation.

The general approach of NZS6805 and the AUP controls around the North Shore Aerodrome is to:

1. Use noise modelling to prepare noise level contours for the airport using predicted flight movements for a period of 10-15 years into the future.
2. Define the location of the 65dB L_{DN} and 55dB L_{DN} noise contours and identify these contours as noise control boundaries
3. Severely restrict the development of ASAN inside the 65dB L_{dn} noise boundary.
4. Control development of ASAN inside the 55dB L_{dn} noise boundary.
5. Apply no land use controls relating to aircraft noise outside the 55dB L_{dn} noise boundary.
6. Use the 65dB L_{dn} and 55dB L_{dn} boundaries to essentially form the noise limits that the North Shore Aerodrome must comply with.

A small part of the ASP site sits within the 65dB L_{dn} noise boundary. A larger part of the ASP site sits within the 55dB L_{dn} noise boundary and a large proportion of the ASP site is outside the North Shore Aerodrome noise boundaries altogether.

I have marked up a copy of the “Key Components” of the Master Plan below to show the operative ANB and OCB and the nature of land uses proposed.

Key Components

- | | |
|---|---|
| A Surf Lagoon | L Wellness Centre |
| B Surf Park Operations and staff car-parking area | M Community Building with local amenity (post shop, pharmacy, corner shop) and Crèche |
| C Visitor Parking amongst native planting and trees with buffer and planting to Highway | N Microbrewery Pavilion Building |
| Surf Park Amenity | O Apartment Accommodation in Village Centre |
| Q Ticketing / Administration | P Ground Floor Maker Space / Small Scale Retail Units activating Market Lane |
| R Changing | Q Live-Work Terraces overlooking communal public park |
| S Surf Rentals | R Light Industrial / Workshop Lots |
| T Surf Academy and pool | S Residential Neighbourhoods |
| U Surf Retail | T Neighbourhood Parks and Gardens including play space, lawn area, communal growing spaces and ecological planting |
| V Lagoon Restaurant | U Residential Lane Access with pedestrian priority |
| E Dunescape Buffer / Arrival Sequence | V Skate / Wheels Play Publicly accessible for use by locals and visitors alike |
| F Stream Park Riparian and ecological planting with walking / cycling networks, ponds and wetlands | W Wastewater Treatment Plant set back from neighbourhoods and within revegetating forest |
| G Hotel Accommodation | X Stormwater Ponds devices integrated with ecological planting |
| H Hotel Parking | Y Road Reserve for future East-West connector road |
| I Stream Park Villa Accommodation set into riparian and revegetating Stream Park | Z Solar Farm (approx. 8.8Ha) local renewable energy source |
| J Members Clubhouse overlooking lagoon with separate pool, dining space and social areas | |
| K Market Pavilion showcasing local produce and groceries with outdoor plaza dining area | |

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The buildings immediately north of the surf park itself are for short stay visitor accommodation. These are not ASAN according to the AUP.

The Residential Neighbourhood on the north side of the stormwater ponds and Stream Park are the only ASAN proposed inside the 55dB L_{dn} contour.

No ASAN are proposed within the 65dB L_{dn} contour.

3.1 Land use controls in D24 of the AUP

3.1.1 Development inside the 65dB L_{dn} noise boundary

Table D24.4.1 of the AUP states that new ASAN are prohibited, and that any alteration or addition to any existing ASAN is non-complying.

The ASP Master Plan does not propose any ASAN inside the 65dB L_{dn} noise boundary.

3.1.2 Development between the 65dB and 55dB L_{dn} noise boundaries

Table D24.4.1 of the AUP states that:

- New ASAN are restricted-discretionary
- New ASAN that do not comply with Standard D24.6.1(1) are non-complying

- Alterations or additions to existing buildings accommodating ASAN are restricted-discretionary
- Alterations or additions to existing buildings accommodating ASAN that do not comply with Standard D24.6.1(1) are non-complying.

Standard D24.6.1(1) requires that new ASAN or additions or alterations to existing ASAN “...*must provide sound attenuation and related ventilation and/or air conditioning measures:*

- (a) *to ensure the internal noise environment of habitable rooms does not exceed a maximum noise level of 40dB L_{dn};*
- (b) *that are certified by a person suitably qualified and experienced in acoustics to the Council’s satisfaction prior to its construction; and*
- (c) *so that the related ventilation and/or air conditioning system(s) satisfies the requirements of New Zealand Building Code Rule G4 with all external doors of the building and all windows of the habitable rooms closed.”*

I describe the requirements of D24.6.1(1) as ‘Acoustic Treatment’.

The proposal is to provide for acoustically treated residential development inside the ONB³.

We recommend all ASAN inside the 55dB L_{dn} contour will need to be acoustically treated in compliance with the acoustic treatment standards set out in D24. We have provided additional comment on the specifications for mechanical ventilation and cooling systems in Section 7.0.

4.0 Proposed development arrangements outside the 55dB L_{dn} contour

The area of the site beyond the 55dB L_{dn} contour is proposed to be developed for a range of activities including residential.

The AUP does not include any noise-related land use controls to manage the subdivision and development of land exposed to aircraft noise levels less than 55 dB L_{dn}.

We consider that there is no need to manage exposure to aircraft noise in this area.

5.0 Mechanical ventilation and cooling specifications for ASAN inside the 55dB L_{dn} contour

D24.6.1(1)(c) requires that new ASAN are provided with ventilation and/or air-conditioning measures that satisfy the requirements of New Zealand Building Code Rule G4 when windows are shut to reduce aircraft noise.

³ Unless the 55dB L_{dn} contour is amended in accordance with the Aerodrome Master Plan as set out in this advice

Mechanical ventilation and cooling systems are a fundamental part of the overall acoustic treatment package and ensure that an adequate internal noise environment is achievable, particularly in warm weather.

If such a system is not provided, or is inadequate, occupants may be compelled to open windows and doors for ventilation and to remain cool in hot weather. This results in aircraft noise intrusion and invalidates the effort of applying acoustic treatment to the building envelope.

We have been involved in several recent plan review processes involving the scrutiny and development of ventilation standards for dwellings in high noise environments. While we are not experts in mechanical ventilation, we understand that the requirements of D24.6.1(1)(c) do not reflect best practice.

D24.6.1(1)(c) simply requires that *“the related ventilation and/or air conditioning system(s) satisfies the requirements of New Zealand Building Code Rule G4 with all external doors of the building and all windows of the habitable rooms closed”*. It is our experience that the solutions required by the New Zealand Building Code are not effective for cooling and do not address the potential for overheating where windows and doors are closed to reduce external noise intrusion.

Where external windows and doors of ASAN must be closed to achieve the specified internal noise environments set out in Chapter D24, we recommend conditions that require the adoption of the mechanical ventilation and cooling specifications in AUP standard E25.6.10(3)(b) to (f). We recommend this standard applies instead of the ventilation system that is otherwise required by D24.6.1(1)(c). The system specification in E25.6.10(3)(b) to (f) require temperature control to ensure that the indoor environments remain cool whilst windows and doors are closed to reduce noise intrusion. The requirements of Clause G4 of the Building Code will still apply. Our experience is that the controls we recommend are typically complied with by the implementation of domestic air conditioning systems and an extraction fan that is capable of ensuring an adequate fresh air supply to reduce the concentration of contaminants.

6.0 Management of aircraft noise under the Chapter D24 of AUP

6.1 Chapter D24 Objectives

The controls in Chapter D24 give effect to the objectives in D24.2(1) and (2) of the AUP which require:

- (1) Airports and airfields are protected from reverse sensitivity effects.
- (2) The adverse effects of aircraft noise on residential and other activities sensitive to aircraft noise are avoided, remedied or mitigated.

6.2 Chapter D24 Policies

The policies in D24 that manage aircraft noise from Ardmore Airport include:

D24.3. Policies

- (1) Avoid the establishment of new activities sensitive to aircraft noise (except tertiary education facilities) within the 65dB L_{dn} noise contour in the Aircraft Noise Overlay.
- (2) Avoid the establishment of new tertiary education facilities and additions or alterations to existing activities sensitive to aircraft noise (other than existing dwellings) within the 65dB L_{dn} noise contour in the Aircraft Noise Overlay unless all habitable rooms and all learning, amenity and recreation spaces on site are located inside buildings and achieve an internal noise environment of 40dB L_{dn} .
- (3) Avoid establishing residential and other activities sensitive to aircraft noise at:
 - (a) airports/airfields except for Auckland International Airport: within the area between the 55dB L_{dn} and 65dB L_{dn} noise contours, unless the effects can be adequately remedied or mitigated through restrictions on the numbers of people to be accommodated through zoning and density mechanisms and the acoustic treatment (including mechanical ventilation) of buildings containing activities sensitive to aircraft noise excluding land designated for defence purposes;
- (5) Manage residential intensification and activities sensitive to aircraft noise within areas identified for accommodating urban growth in a way that avoids reverse sensitivity effects as far as practicable, including reverse sensitivity effects between those land uses and such effects on Auckland International Airport, Ardmore Airport, Whenuapai Airbase and North Shore Airport, and that avoids, remedies or mitigates adverse aircraft noise effects on people and communities.

Policy D24.3(1) is given effect to by a prohibited activity status for all new ASAN inside the 65dB L_{dn} contour.

All other policies refer to the need to avoid the establishment of residential and other ASAN within the area between the 55dB L_{dn} contour and the 65dB L_{dn} contour, unless the effects can be “adequately remedied or mitigated” through:

- Acoustic treatment (including mechanical ventilation) of all buildings containing ASAN
- Restrictions on the numbers of people to be accommodated through zoning and density mechanisms
- Management of residential intensification (and ASAN) within areas identified for accommodating urban growth in a way that avoids reverse sensitivity effects as far as practicable and avoids, remedies or mitigates adverse aircraft noise effects on people and communities.

6.3 Chapter D24 Assessment Criteria

We understand that the Assessment Criteria in D24.8.3.1 are relevant. These state:

D24.8.3.1. North Shore Airport, Kaipara Flats Airfield and Whenuapai Airbase and Ardmore Airport

- (1) The internal noise environment of the proposed and any existing structure should provide satisfactory levels of health and amenity values to occupants.
- (2) The internal air quality of the proposed or any existing structure should provide satisfactory health, and amenity values to occupants.

(3) The proposed measures for attenuation of aircraft noise arising in connection with the airport/airfield/airbase should satisfactorily avoid, remedy or mitigate those effects.

(4) Mechanisms should be put in place to ensure there is an ongoing obligation on owners to ensure that required acoustic treatment measures are not removed without the Council's prior consent.

(5) Having regard to all the circumstances, including location in relation to the airport/airfield/airbase, likely exposure of the site to aircraft noise, noise attenuation and ventilation measures proposed, and the number of people to be accommodated, the nature, size and scale of the proposed activity should not be likely to lead to potential conflict with and adverse effects upon the operation of the airport/airfield/airbase.

Our recommendations to meet the internal design noise levels specified in D24 and to adopt the mechanical cooling and ventilation requirements of E25 (in place of those in D24) meets and exceeds (respectively) Assessment Criteria 1 to 3.

We understand that Assessment Criteria 4 will be addressed by the proposed conditions of consent.

A full assessment against Assessment Criteria 5 requires the assessment of planning matters that are outside of our expertise.

6.4 Potential noise effects

People can be exposed to aircraft noise when they are inside their dwellings or other ASAN and when they are outside. Exposure outside is generally only an issue when amenity expectations are high, such as during passive recreation or when socialising in a residential setting. Exposure during outdoor activities such as when commuting or at work is generally not an issue.

The proposal is to acoustically treat all ASAN. This will adequately mitigate the majority of the noise effects. The greenfield development means that all ASAN will be acoustically treated. This is quite different to the situation around many airports in New Zealand where acoustic treatment of ASAN inside the 55dB L_{dn} contour is generally incomplete and variable in standard.

Most guidance and standards on effects are based on studies of communities near to international airports with 24hr operations and with a mix of acoustically treated dwellings and untreated dwellings. We are not aware of any published guidelines or findings that refer specifically to known noise effects on communities living entirely within acoustically treated dwellings. This makes an assessment of potential effects difficult in this case. We consider that an assessment against the published guidance and standards will show a greater level of effect than will actually be experienced.

Most countries adopt 55 dB L_{dn} as the regulatory threshold for which land use planning controls are required to manage land use compatibility on land exposed to aircraft noise. The percentage of people that will be "highly annoyed" at levels of between 55 dB L_{dn} and 60 dB L_{dn} will vary and be determined by a range of factors including non-acoustical factors (such as expectations and attitude towards the airport generally).

The 2018 World Health Organization Environmental Noise Guidelines for the European Region⁴ (**the 2018 Guidelines**) are probably the most commonly adopted reference for determining adverse health and annoyance effects. However, we consider that the 2018 Guidelines are not appropriate for determining the level of potential annoyance effects on communities where acoustic treatment has been implemented in all noise sensitive spaces.

There is a general consensus that the WHO targets are impracticable for towns and cities to achieve when taking into account the practical challenges faced involved in managing urban development in a way that would avoid exposing communities to noise from transport infrastructure, while meeting demand for housing supply and population growth.

It is our experience that the WHO targets are often regarded as optimistically low, or 'ideal'. The WHO limits are strictly health-based targets and do not take into account any other non-acoustical factors that may arise from achieving them, such as the costs and social and environmental benefits and disbenefits of delivering an urban environment where noise effects from major infrastructure is avoided entirely.

We understand that the provisions in the D24 have been based on the principles of New Zealand standard NZS6805 *Airport Noise Management and Land Use Planning* (**NZS6805**) but with a range of specific changes to improve the outcomes. The major improvement is decreasing the indoor design noise level from 45dB L_{dn} (NZS6805) to 40dB L_{dn} (D24).

The general planning arrangements and noise level thresholds for introducing land use controls (55dB L_{dn} contour) in D24 are consistent with NZS6805. NZS6805 states that new ASAN should be prohibited inside the 55dB L_{dn} contour unless they are acoustically treated, but NZS6805 does not state what the consenting status should be for new ASAN that are acoustically treated. The implication is that they should be Permitted.

Our experience is that most District Plans around New Zealand state that new ASAN within the 55dB L_{dn} contour are typically permitted or restricted discretionary provided they are acoustically treated. The potential adverse outdoor noise effects are accepted as being unavoidable in these circumstances.

The effects on people outdoors can be described as the 'residual' effects. The potential residual effects cannot be quantified using any annoyance data or curves that we are aware of. As set above, this is because the annoyance data available is generally based on large studies of people living in environments with a mixture of housing typologies and where only a portion of the population live in acoustically treated dwellings.

The residual effects will generally be experienced as hearing the regular noise of aircraft overhead – and especially during the day. Based on our experience of the area, we expect that the noise level of aircraft overhead will range subjectively from being inaudible at times or distant but noticeable, through to close and loud enough to affect outdoor conversation, especially if the distance between people talking is more than a few metres. This may be similar to living a short distance from a busy road, but less than what would be experienced living next to a busy road.

Overall, we consider that the aircraft noise environment across the residential neighbourhood areas of the site could be described as moderate. The proposed land use controls are consistent with the guidance in NZS6805 and the residual / outdoor noise effects are anticipated by the same standard.

The development of activities sensitive to noise near to roads, rail and airports is common in New Zealand. The NPS-UD encourages residential intensification around transport nodes. Transport nodes are typically high noise environments. The NPS-UD does not direct a requirement for acoustic treatment. We understand that there are a number of planning benefits associated with developing land near to transport infrastructure that can be high noise environments. These include reducing distance to employment, reducing road traffic and increasing walking and cycling opportunities. These matters are outside our expertise to evaluate. However, our experience is that the ultimate balancing and weighting of these factors can often mean that it becomes desirable overall to authorise intensification to achieve these outcomes despite the residual noise effect arising in the outdoor areas of residential development.

Activities that are not ASAN can be developed according to the provisions of D24. These are working environments where aircraft noise effects will not have an adverse effect on people.

7.0 North Shore Aerodrome Master Plan

The North Shore Aerodrome has recently published its draft Master Plan. The Master Plan proposes changes to a range of activities and land uses in and around the North Shore Aerodrome.

A key aspect of the Master Plan is to disestablish runway 09/27. Runway 09/27 is the secondary cross-wind runway with a gravel surface and its current primary use is to facilitate the arrival and departures of helicopters without interfering with operations on the main (03/21) runway. The Master Plan describes this use as “*a luxury that has little necessity.*”

The Master Plan states that disestablishing runway 09/27 will deliver five key benefits. The two benefits that are relevant to the ASP proposal are:

- “*Strategic land is released for repurposing*
- *The airport noise overlays in the AUP can be amended to reshape the 55dB and 65dB boundaries reducing their impact on neighbouring properties.*”

The significance of this to the ASP proposal is that the 55dB L_{dn} noise boundary is likely to shrink a significant amount back towards the North Shore Aerodrome.

We understand that the North Shore Aerodrome has not yet lodged a plan change request to disestablish runway 09/27 and amend the noise boundaries. However, we understand that the North Shore Aerodrome Master Plan can be relied on in this case.

7.1 Revised noise boundaries over ASP Master Plan

I have marked up a copy of the “Key Components” page of the ASP Master Plan to show the location of the operative noise boundaries, and the approximate envelope within which I estimate the revised 55dB L_{dn} contour will likely sit once the aircraft noise level predictions are revised without runway 09/27. The markup is shown in Figure 1 below and as an enlarged version in Appendix 1.

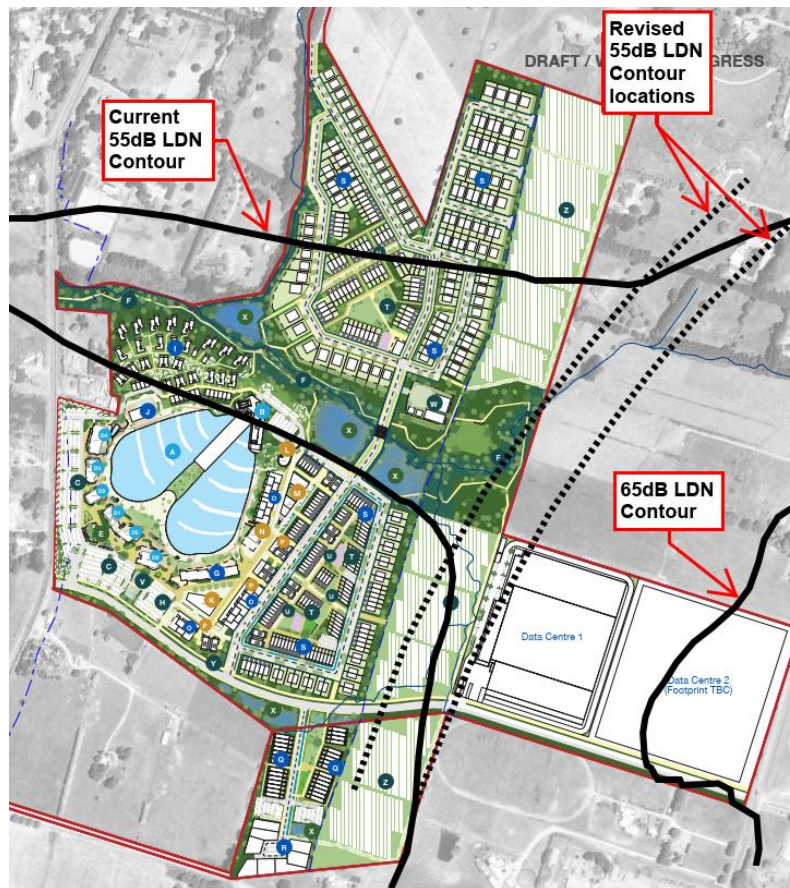


Figure 1 – ASP Master Plan showing operative noise boundaries and the approximate worst-case estimated locations of the 55dB L_{dn} contour following the disestablishment of runway 09/27

The markup shows that the ASP Master Plan does not include any ASAN inside the areas of the subject to the operative 65dB L_{dn} noise boundary, or the likely location of the 55dB L_{dn} noise boundary when runway 09/27 is disestablished.

8.0 Conclusion

Proposed Stage 2 of the Surf Park Development includes a mix of residential, village-centre, a live-work precinct and a network of transport infrastructure. The proposal includes provision for residential development which is defined as ASAN according to Chapter J1 of the AUP.

8.1 Assessment against Chapter D24

The North Shore Aerodrome is located west of Stage 2 of the ASP site. The North Shore Aerodrome generates noise effects that extend beyond its own boundaries and across surrounding land uses. A small part of the ASP site sits within the 65dB L_{dn} noise boundary. A larger part of the ASP site sits within the 55dB L_{dn} noise boundary and a large proportion of the ASP site is outside the North Shore Aerodrome noise boundaries altogether.

ASAN within the North Shore Aerodrome noise boundaries are managed by the land use controls in D24 of the AUP.

The proposal is to enable acoustically treated ASAN between the 55dB L_{dn} contour and the 65dB L_{dn} contour. The acoustic treatment will meet the requirements of the standards in D24 of the AUP.

We recommend the specifications in standard E25.6.10(3)(b) to (f) apply to ASAN across the development, rather than the simple ventilation system that would otherwise be required by D24.6.1(1)(c). Our recommendation means that the internal environment will be better than it would be if only implementing the standard in D24.6.1(1)(c).

Overall, we consider that the aircraft noise environment across the residential neighbourhood areas of the site could be described as moderate. The proposed land use controls are consistent with the guidance in NZS6805 and the residual / outdoor noise effects are anticipated by the same standard.

There will be residual effects that will generally be experienced as hearing the regular noise of aircraft overhead – and especially during the day. Based on our experience of the area, we expect that the noise level of aircraft overhead will range subjectively from being inaudible at times or distant but noticeable, through to close and loud enough to affect outdoor conversation, especially if the distance between people talking is more than a few metres. This may be similar to living a short distance from a busy road, but less than what would be experienced living next to a busy road.

The Assessment of Effects addresses the planning considerations related to Assessment Criteria 5 in D24.8.3.1.

8.2 Assessment if the North Shore Aerodrome Master Plan is given effect to

The North Shore Aerodrome has recently published its draft Master Plan. The Master Plan proposes changes to a range of airport related activities and land uses in and around the North Shore Aerodrome. A key aspect of the Master Plan is to disestablish runway 09/27. The Master Plan confirms that the airport noise overlays in the AUP can be amended to reshape the 55 dB and 65 dB L_{dn} boundaries to reduce their impact on neighbouring properties.

The significance of this to the ASP proposal is that the 55dB L_{dn} noise boundary is likely to shrink a significant amount back towards the North Shore Aerodrome. My assessment is that all ASAN shown on the ASP Master Plan will be located outside the anticipated 55dB L_{dn} noise boundaries when runway 09/27 is disestablished and the noise contours are reshaped accordingly.

The proposed establishment of ASAN inside the 55dB L_{dn} noise contour will require resource consent as a restricted discretionary pursuant to Chapter D24 of the AUP. Our assessment finds that all ASAN on the ASP Master Plan will be outside the 55 dB L_{dn} noise boundary following the disestablishment of runway 09/27 according to the North Shore Aerodrome Master Plan. On this basis, we consider that no acoustic treatment of any ASAN would be required.

We consider that the proposal would be consistent with the anticipated outcomes of Chapter D24 on the basis that the AUP does not include any noise-related land use controls to manage the subdivision and development of land exposed to aircraft noise levels less than 55 dB L_{dn} .

Please contact me if you require any further information.

Yours sincerely,



Jon Styles, MASNZ
Director and Principal

Key Components

- | | |
|--|--|
| A Surf Lagoon | L Wellness Centre |
| B Surf Park Operations and staff car-parking area | M Community Building with local amenity (post shop, pharmacy, corner shop) and Creche |
| C Visitor Parking amongst native planting and trees with buffer and planting to Highway | N Microbrewery Pavillion Building |
| Surf Park Amenity | O Apartment Accommodation in Village Centre |
| 01 Ticketing / Administration | P Ground Floor Maker Space / Small Scale Retail Units activating Market Lane |
| 02 Changing | Q Live:Work Terraces overlooking communal public park |
| 03 Surf Rentals | R Light Industrial / Workshop Lots |
| 04 Surf Academy and pool | S Residential Neighbourhoods |
| 05 Surf Retail | T Neighbourhood Parks and Gardens including play space, lawn areas, communal growing spaces and ecological planting |
| 06 Lagoon Restaurant | U Residential Lane Access with pedestrian priority |
| E Dunescape Buffer / Arrival Sequence | V Skate / Wheels Play
Publicly accessible for use by locals and visitors alike |
| F Stream Park
Riparian and ecological planting with walking / cycling networks, ponds and wetlands | W Wastewater Treatment Plant set back from neighbourhoods and within revegetating forest |
| G Hotel Accommodation | X Stormwater Ponds
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| H Hotel Parking | Y Road Reserve for future East-West connector road |
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