



22nd January 2024

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Matamata Piako District Council
PO Box 266
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Dear Ally

Re: Private Plan Change 58 Avenue Business Park

1. Introduction

Savory Acoustics Limited has been engaged by Matamata Piako District Council (MPDC) to assist in reviewing the noise impacts of the proposed private plan change PC58.

MPDC had received an application to rezone 13.4 hectares of land from Rural to General Industrial Zone (GIZ). The application has attached an acoustic assessment of noise effects prepared by Marshall Day Acoustics (MDA). This report has identified the nearby residential dwellings, identified the current noise rules for these dwellings, reports on noise logging data around the site/dwellings and proposes new noise rules for the GIZ application.

This assessment has referenced the following documents.

- a) Marshall Day Acoustics report Rp 001 r01 20211116 (11 January 2024) – “MDA report”
- b) MPDC Operable District Plan
- c) NZS 6801-2008 Acoustics - Measurement of Environmental Sound
- d) NZS 6802-2008 Acoustics - Environmental Noise
- e) National Planning Standards 2019 (updated 2022)
- f) NZ Building Code G4
- g) NZS 4303-1990 Ventilation for acceptable air quality

This assessment has been prepared in a compressed timetable that included the December/January holiday period. Consequently, I have not had the opportunity to visit the site or conduct additional noise logging of the current environment at the site and surroundings. I have used aerial data on the MPDC site and other sources such as Google Earth. I have also used the noise logging data contained in Appendix C of the MDA report.

2. Summary of PC58 Noise Effects

In summary, my comments relating to PC58 noise effects are:

- The main item of change to the zoning of the site increases the daytime noise limit from 50dBA L_{10} to 55dBA L_{Aeq} at notional boundaries of neighbouring dwellings and introduces a requirement for noise insulation to new dwellings within the existing notional dwellings.
- Dwellings to the south of the site are close to SH26. Existing traffic noise from SH26 provides a noise environment consistent with the proposed daytime noise limit.
- Existing Traffic noise from SH26 is lower at neighbouring dwellings to the north of the site owing to the greater distance from SH26.
- The applicant proposes to 'date' the existing dwellings to avoid reverse sensitivity issues in the future.
- The 'dating' of the existing dwellings is effectively a Noise Control Boundary arrived at another way. I propose to use a Noise Control Boundary directly and the location of this boundary addresses the reverse sensitivity issue as well as providing additional protection for those dwellings further from SH26. It also avoids noise insulation to ancillary dwellings at the sites further from SH26.

In my opinion the alternative Noise Control Boundary concept, coupled with amendments to the noise rule to align with the upgrade to the MPDC Plan, provides controls that are consistent with the future plan and limits noise effects of PC58 to no more than minor.

3. Proposed Noise Rules

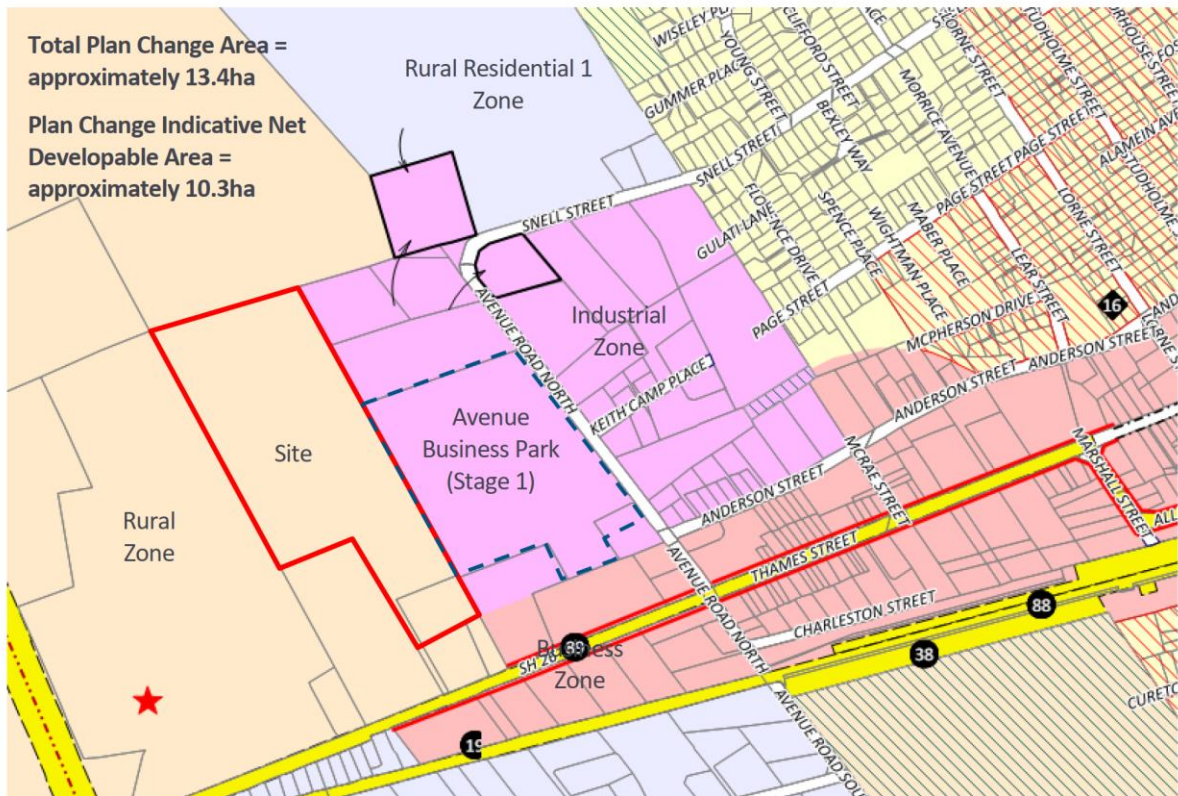
The site and surrounding land to the north, west and south are presently zoned Rural with noise rules in the current district plan being (rule 5.2.6):

- 50dBA L₁₀ daytime at notional boundary of any dwelling in Rural Zone (7am to 8pm)
- 40dBA L₁₀ nighttime at notional boundary of any dwelling in a Rural Zone

To the east of the site is land zoned Industrial.

PC58 seeks to extend the existing industrial zoned land further to the west (refer Figure 2 in the MDA report – reproduced below).

Figure 2: Proposed Plan Change area (the Site)



There are five dwellings located on rural zoned land around the proposed site. These are:

- 2469 SH26 – Approx 220m from the proposed site boundary
- 2559 SH26 – Approx 165m from the proposed site boundary
- 2561 SH26 – Approx 160m from the proposed site boundary
- 2579 SH26 – Approx 49m from the proposed site boundary
- 2581 SH26 – Approx 25m from the proposed site boundary

These are also shown in Figure 1 below.

Figure 1: Rural Dwellings Surrounding the Site



PC58 proposes to introduce a new zone for the site labelled General Industrial Zone (GIZ). Noise rules for this new zone are proposed to be:

D1 Excerpt of Proposed GIZ noise provisions for PC58

(8) Noise

- (a) The noise level (L_{Aeq}) as measured at any point within the boundary of any land zoned ~~r~~Residential, or the notional boundary of any ~~rural~~ dwelling in the Rural Zone which was existing at (insert PC58 notification date), shall not exceed 55dB Monday to Saturday – 7am to 10pm, or 40dB at all other times. The L_{max} shall be 65dB L_{AFmax} between 10pm to 7am.
- (b) The noise level (L_{Aeq}) as measured at any point on the boundary within the zone GIZ shall not exceed 65dBA.
- (c) The noise must be measured in accordance with the requirements of NZS6801:2008 – Acoustics – Measurement of Environmental Sound and assessed in accordance with the requirements of NZS6802:2008 Acoustics – Environmental Noise.
- (d) *Ancillary residential units* located within the zone GIZ shall be designed, insulated or constructed and maintained to ensure that:
 - (i) noise received shall not exceed 35dB L_{Aeq} in bedrooms and 40dB L_{Aeq} to all other habitable spaces from noise not on the same site; and
 - (ii) if windows are required to be closed to achieve the noise limits in clause (i) above, the building must be designed and constructed to provide an alternative means of ventilation in accordance with Clause G4 of the New Zealand Building Code; and
 - (iii) an acoustic design report prepared by an appropriately qualified practitioner confirming compliance with clause (i) and (ii) above must be submitted to Council as part of resource or building consent application.
- (e) Noise mitigation for noise sensitive activities refer to Rule 5.2.9.
- (f) Also refer to section 5.2

This follows the levels set in MPDC Plan rule 5.2.4 with a change from L_{10} to L_{Aeq} in line with National Planning Standards (NPS).

The noise rule proposed by PC58 changes the existing noise rules for the surrounding dwellings as below:

1. Change of descriptors from L_{10} to L_{Aeq} in line with NPS.
2. No change to the nighttime noise rule from 40dBA L_{10} to 40dB L_{Aeq}
3. A 5dB increase in the allowable daytime noise limit (from 50dBA L_{10} to 55dB L_{Aeq})
4. An extension of the daytime hours from 7am - 8pm Monday to Saturday to 7am - 10pm Monday to Saturday
5. Addition of a L_{AFMAX} criteria a night.
6. No changed to the to the noise limit within the GIZ set at 65dB L_{Aeq} between GIZ zoned sites.

Items 3 and 4 are the notable change to the current noise rules experienced by the five dwellings around the proposed site.

The site is located close to a main arterial road (SH26). Traffic on SH26 is a major source of environmental noise to land around this road. Locating industrial zones by main arterial roads is a suitable location for industrial land for numerous reasons, one being the environment has a higher existing level of noise.

4. Update to District Plan

There is currently a review of the Matamata Piako District Plan to bring the plan into line with National Planning Standards. As part of this review, the noise rules in the plan are being updated.

My preliminary recommendation to MPDC for the GIZ noise rules be revised to:

NOISE-R9(1) GIZ

- (a) The noise rating level from any activity in an GIZ when measured at any point within the boundary of any land zoned GRZ, or the notional boundary of any residential unit in a GRUZ or RLZ must not exceed the following:

Monday to Saturday Sunday and Public Holidays	7.00am to 10.00pm 9am to 6pm	55dB LAeq
At all other times		45dB LAeq and 75dB LAFmax

- (b) The noise rating level from any activity in an GIZ when measured at any point within the boundary of any adjacent property in the COMZ must not exceed the following.

Monday to Sunday	7.00am to 10.00pm	60dB LAeq
At all other times		60dB LAeq and 90dB LAFmax

- (c) The noise rating level from any activity in an GIZ when measured at any point within the boundary of any adjacent property in the GIZ must not exceed the following:

Monday to Sunday	7.00am to 10.00pm	65dB LAeq
At all other times		65dB LAeq and 95dB LAFmax

The recommendation is that GRZ, GRUZ and RLZ rule apply to adjacent properties to the GIZ. This is to achieve a balance between noise protection/amenity for those dwelling adjacent to the GIZ while recognising the economic impact of overly onerous noise rules.

Ideally there would be land around industrial zones that is not used for residential. This can be commercial zones, sport grounds or green/open spaces. This provides an acoustic separation between these two zones.

There is an LAFMAX criteria added to the GIZ/COMZ interface and the GIZ zone. This is not common, and it is because residential dwellings are permitted within these zones provided sound insulation requirements are met. The update should address the comments in the MDA report regarding NZS6803 and vibration standards.

There is a change to the time-period for the noise rules with all now changing at 10pm and with Sundays 9am to 6pm added to the daytime limit for the GRZ, GRUZ and RLZ.

This update addresses several of the criticisms made in the MDA report about the L_{10} vs L_{Aeq} , the time-period, Sunday low noise levels and the L_{AFMAX} criteria.

The inclusion of the Sunday daytime period is supported by the noise logging data in the MDA report that shows very little difference between the Monday-Saturday 7am to 10pm and Sunday 7am to 10pm levels. This difference would be smaller given the proposed time-period for Sunday is 9am to 6pm.

It would be preferable to align the proposed PC58 GIZ rule and NOISE-R9(1) GIZ rule. This would avoid a separate rule and provide consistency in the treatment of industrial zones within the district.

5. Existing Noise Environment

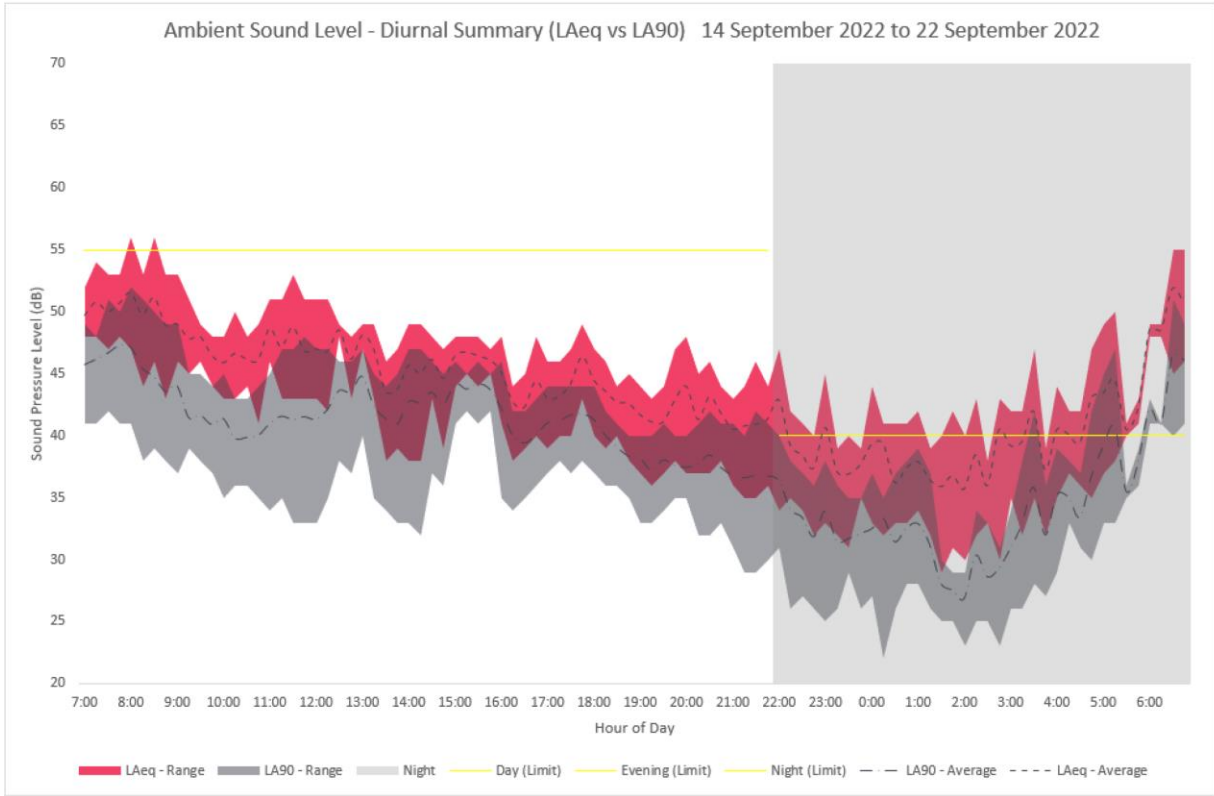
The MDA report contains the results of noise logging at two locations by the site, one being close to SH26, the other further away from SH26.

Noise logger position 1 was located by the dwelling at 2469 SH26. This is further from SH26 at approximately 900m.

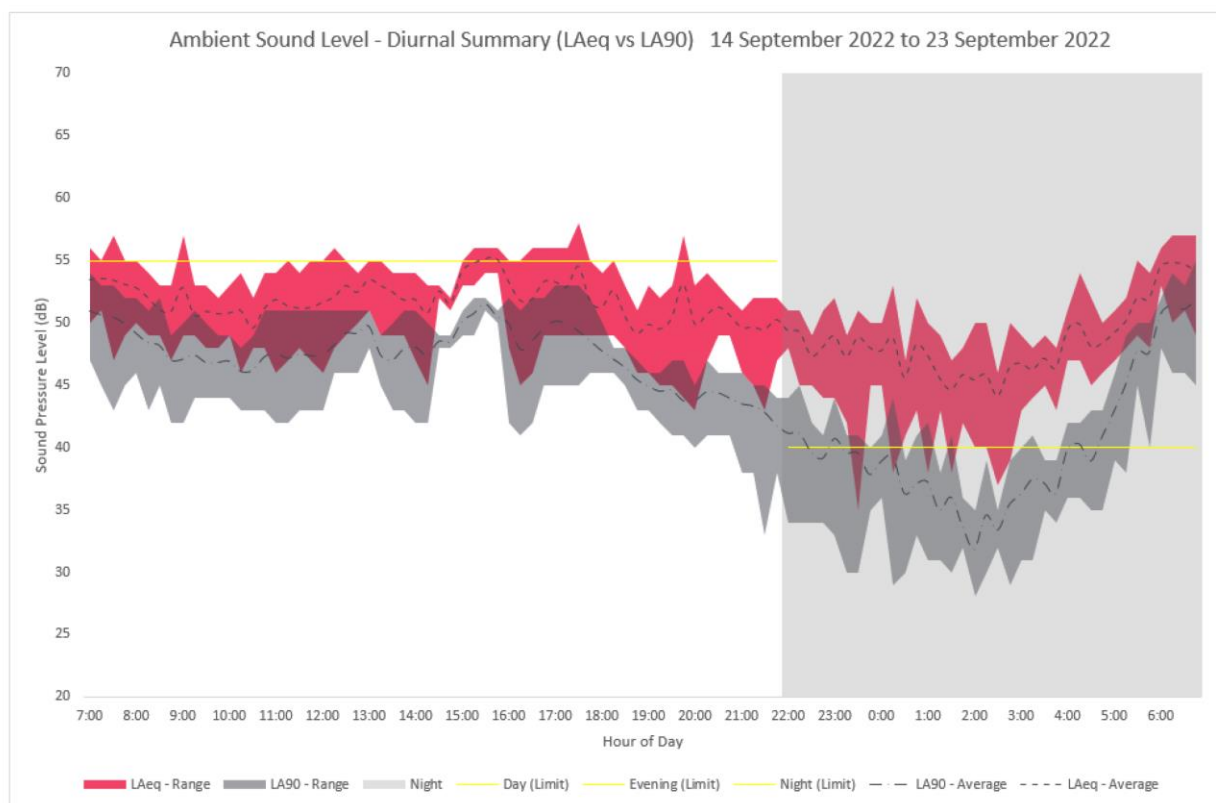
Noise logger position 2 was located by the dwelling at 2579 SH26. This is closer to SH26 at approximately 170m.

Below are the histograms for the two locations reproduced from the MDA report.

Histogram Noise Logger 1



Histogram Noise Logger 2



As expected, the noise environment dominated by traffic and is louder closer to SH26.

The logging data suggests that noise rules of 55dBA L_{Aeq} (7am to 10pm) and 45dBA L_{Aeq} (10pm to 7am) would be in keeping with the existing environment closer to SH26 whereas lower levels of 50dBA L_{Aeq} (7am to 10pm) and 40dBA L_{Aeq} (10pm to 7am) would be more in keeping with locations further from SH26.

6. Reverse Sensitivity

The MDA report raises the issue of reverse sensitivity. This is an unintended consequence of the notional boundary concept.

As pointed out in the MDA report, in the case of a notional boundary a noise emitter can be compliant at all existing notional boundaries only to discover a new dwelling constructed closer to the emitters site now results in a non-compliance.

This is not an ideal situation for either noise emitter or receiver. For the emitter there is no long-term certainty over their noise emissions for a particular site. While the intention of a notional boundary is to protect rural dwellings from noise while not unduly imposing noise restrictions on unoccupied rural land, it is subject to reverse sensitivity. This is why I prefer a 'Noise Control Boundary' concept in cases such as this.

The applicant seeks to address reverse sensitivity by identifying the dwellings present at the date of the new noise rule. This would exclude any new dwelling from the noise rule. To cover the construction of a dwelling closer to the site that would be exposed to higher noise levels, the applicant proposes a requirement to noise insulate such dwellings.

This is effectively a 'noise control boundary' concept implemented another way.

I understand that the MPDC is not in favour of dating the dwellings that are subject to the rule proposed by the applicant.

7. Submissions From Neighbours

I have been supplied with two submissions made in response to PC58. One being from 2559 SH26, the other being from 2469 SH26.

The submission from 2559 SH26 raises noise concerns among others. Noise concerns relate to consultation, the omission of noise monitoring at this site and some construction noise concerns.

The submission from 2469 SH26 raises noise concerns relating to the requirements to noise insulate future dwellings.

As mentioned, owing to time constraints, further noise logging has not been possible. The present noise environment is reported to be dominated by traffic on SH26. 2559 SH26 is approximately midway between the two logger positions, thus I would anticipate that the noise environment at 2559 SH26 would be midway between the levels at two logger locations.

Construction noise is controlled by NZS6802. The new rule (and updates to the District Plan) updates this standard to the current version. Otherwise, the construction noise protection is unchanged by PC58.

I have been advised by MPDC that the current review of the rules for rural zones, ancillary dwellings will be permitted provided these no larger than 60m² floor area and are within 70m of the main dwelling. The alternative solution below will be in line with this change to the rural zone as it will permit the construction of such a building on 2469 SH26 without the requirement for noise insulation.

8. Alternative Solution – Noise Control Boundary

To remedy the reverse sensitivity problem, the proposal by the applicant is to date the existing dwellings around the site. As mentioned, this proposal is effectively a 'Noise Control Boundary' by another name.

In addition, noise logging data suggests that dwellings further from SH26 have a quieter existing noise environment than those located close to SH26, and submissions have been made by neighbours relating to noise and the future cost of noise insulating ancillary dwellings.

My suggestion is that a Noise Control Boundary (NCB) be established around the site. This is a well-used concept in the MPDC plan for numerous industrial sites surrounded by rural land. Figure 2 below shows the suggested location of the NCB. It located 100m from the north and west boundaries and 20m from dwelling facades at 2579 SH26 and 2581 SH26.

Figure 2: Noise Control Boundary



The noise rule set at the NCB would be the same as Rule NOISE-R9(1) GIZ ie. 55dB LAEQ daytime, 45dB LAEQ nighttime and 75dB LAFMAX nighttime.

The location of the NCB is not overly onerous for the layout of this site as the 65dB LAEQ limit between industrial sites goes a long way to limiting noise emissions to 55dB LAEQ at the NCB.

Any dwelling constructed within the NCB and GIZ would require noise insulation as per section 6.3 in the MDA report, but I would recommend that the ventilation provision be changed to:

For the purposes of this rule, a mechanical ventilation system means:

- a) An outdoor air system complying with the requirements of the Building Code (NZS 4303) for mechanical ventilation (refer Clause G4). This is to provide a minimum level of air quality.
- b) **and** a mechanical heating/cooling system (eg. heat pump) designed by a suitably qualified engineer. This is to provide thermal comfort. The heating/cooling system must:
 - i. be capable of maintaining an internal temperature of 18C° in all bedrooms at all times with all bedroom doors closed.
 - ii. be capable of maintaining a maximum internal temperature of 22°C in all other habitable rooms at all times with all bedroom doors closed.

- iii. be designed to NIWA 2.5% design weather dataset.
 - iv. allow the on/off operation to be controlled by the occupant.
 - v. allow the set temperature of each heating/cooling unit to be controllable between 18°C to 25°C by the occupant.
- c) System noise must be designed so that the combined level from the outdoor air system (satisfying clause 1a) and heating/cooling system (satisfying clause 1b) does not exceed 35dB $L_{Aeq(30s)}$ in bedrooms and 40dB $L_{Aeq(30s)}$ in other habitable rooms.

This alternative NCB concept will give:

- Consistency with the update of the District Plan
- Resolve reverse sensitivity of a notional boundary concept by setting the location of the NCB.
- Provide a buffer area around the proposed industrial zone and not impose overly onerous noise rules on rural land not containing dwellings.
- The NCB being located at 20m from the dwellings at 2579 SH26 and 2581 SH26 will provide the same protections as a notional boundary concept. The existing noise environment at these locations is in keeping with the levels set in NOISE-R9(1) GIZ rule. There is a stormwater management reserve located at the southern end of the site. This will provide a noise buffer zone to these sites.
- The location of the NCB at ~65m from 2559 SH25 (100m from the proposed zone boundary) affords this site a quieter level than set in NOISE-R9(1) GIZ rule at the NCB reflecting the increased distance from SH26 and quieter environment.
- The location of the NCB at ~120m from 2569 SH26 (100m from the proposed zone boundary) affords this site a quieter level than set in NOISE-R9(1) GIZ rule at the NCB (more likely to be closer to level in rule 5.2.4) reflecting the further increased distance from SH26 and quieter environment. As the NCB is set at 100m from the common boundary, this avoids the requirement for noise insulation of an ancillary dwelling for most of this property.

Yours sincerely

Savory Acoustics Limited



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