DESIGN ADVICE MEMO

Powell Fenwick

ACOUSTIC

Memo No	**A01 Issue F**
Job Name	**Wolfbrook Pegasus Fast Track Referral**
Job No	**260974**
Date	**28 Jul 2026**
To	**Novo Group**
Attention	**Adele Radburnd**
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Issued By	**Mark Lewthwaite**

Acoustic Technical Advice

1. Executive Summary

Powell Fenwick have been engaged by Wolfbrook Developments (Pegasus) Limited to provide acoustic assessment of the proposed primarily residential development on the site of the former Pegasus Golf and Sports Club. This memorandum is intended to accompany a Fast-Track referral application as per s13 of the Fast-track Approvals Act 2024. A future detailed acoustic assessment would accompany the substantive Fast-Track application.

The land is zoned Special Purpose (Pegasus Resort) but is proposed to be used primarily for housing if the Fast-Track consents are approved.

SH1 adjacent to the development is subject to upgrade under the Roads of National Significance programme (Belfast – Woodend Bypass). A Draft Decision and Conditions on the State Highway upgrade was issued on 26 June 2026 by an expert Fast Track application panel hearing the B2P Application, which is a draft decision to grant consent. Based on publicly available information about the Bypass proposal, the highway design, inclusive of low noise road surfaces and solid barriers either side of the flyover lanes are not expected to result in noise levels that would significantly impact residential use of the subject land.

The closest edge of *new* residential sites proposed would be approximately at the 60 dB $L_{Aeq(24hr)}$ contour of the new State Highway. Compliance with the Partially Operative Waimakariri District Plan (PODP) acoustic insulation standards for residential activities within the road noise overlay would easily be achieved.

Effects are therefore not likely to be significant and all are capable of resolution at the substantive stage.

2. Introduction

Powell Fenwick have been engaged by Wolfbrook Developments (Pegasus) Limited (Wolfbrook) to provide acoustic assessment of the proposed residential development on the site of the former Pegasus Golf and Sports Club at 8 Mapleham Drive, Pegasus. The development is large scale, and is intended to deliver housing supply within the Greater Christchurch area, utilising land that proved unprofitable as a golf and sports destination. The development also includes new commercial/community development areas.

This memorandum is intended to accompany a Fast-Track referral application as per s13 of the Fast-track Approvals Act 2024. The assessment included is at a provisional level based on preliminary information, only intended to determine whether there are any acoustic aspects of the development that would have a significant adverse effect and whether all issues can reasonably be expected to be resolved at the substantive stage. The assessment will be refined through more detailed technical work at substantive application stage and should not be used for detailed design, construction or final decision making.

The development is best described with reference to the indicative Master Plan by DCM Urban Design Ltd.

Figure 1: Land use indicative masterplan from Revision 24 Jun 2026.

The indicative masterplan shows the former golf course, importantly including existing residential activities around the former golf course (but outside the development project site) that will remain, and similarly interfaces with wider residential areas including the main Pegasus township to the east, and rural dwellings to the north and south. In the PODP the land is zoned Special Purpose (Pegasus Resort) henceforth referred to as SPZ(PR). This provides largely for golf and tourism related activities but makes limited provision for housing in certain 'activity areas'. Pegasus Boulevard divides the site.

Construction noise and vibration effects on existing noise-sensitive locations will need to be managed.

Effects of seasonal rural activities to the north-east and south-west on new residential dwellings should be considered.

Across Main North Rd, which is State Highway 1 (SH1), are existing commercial and residential activities and under-development residential areas. These areas across the motorway are less significant when considering effects of/on the Pegasus West Development, as the SH1 corridor provides a dividing barrier of notable width and higher noise generation.

SH1 adjacent to the development is subject to upgrade under the Roads of National Significance programme (Belfast – Woodend Bypass). The Bypass project includes a flyover to allow traffic to join SH1 and pass freely from the Pegasus side under the flyover to the west side of SH1. The future motorway operational noise will need assessment.

This memorandum therefore addresses the following noise matters:

+ Motorway noise effects on new residential lots
+ Pegasus Boulevard noise effects on new residential lots
+ Appropriateness of current noise standards within the development
+ Rural noise at existing rural to new residential interfaces
+ Construction noise and vibration affecting existing noise-sensitive activities

The SPZ(PR) zone provides for a helipad, close to the commercial area. Wolfbrook does not intend to establish or operate a helipad.

3. Motorway noise effects on new residential lots

The NZTA SH1 Belfast to Pegasus Motorway and Woodend Bypass project commenced planning in 2014 and is now at the pre-implementation stage. A Draft Decision and Conditions on the State Highway upgrade was issued on 26 June 2026 by an expert Fast Track application panel. Information provided to Wolfbrook by NZTA included an acoustic assessment of the best practicable option (BPO) for reducing noise from the motorway and related roads. We reference Marshall Day Acoustics (MDA) report, *SH1 Belfast to Pegasus Motorway and Woodend Bypass, Assessment of Traffic Noise Effects, Rp 001 20241224, 10 June 2026* for the data and figures used in this sub-section.

Assessment and categorisation of noise levels has been carried out by MDA in accordance with NZS 6806:2010 *Acoustics – Road-traffic noise – New and altered roads.* The 'Detailed Mitigation Option' which is the latest design incorporating the BPO, results in noise levels as per Figure 2. Traffic volumes are based on 2048 predictions.

Figure 2: Noise levels expected at the west (top image) and south interfaces (bottom image) with the development, adapted from MDA report Appendix B.

At time of these reports there were limited Protected Premises and Facilities (PPFs) i.e. noise-sensitive locations such as dwellings, on or near the former golf course site which may have contributed to there being no bund to the east and north sides (proposed development sides) of SH1 as part of the Bypass in this area. Notwithstanding this, the highway design, inclusive of low noise road surfaces and solid barriers either side of the flyover lanes results in noise levels at existing dwellings near to SH1 and adjacent to the development site all within NZS 6806 Category A which means outcomes are within the most stringent (lowest noise level) category. The closest edge of *new* sites proposed would be approximately at the green 60 dB $L_{Aeq(24hr)}$ contour in both cases.

The PODP noise policy NOISE-P3 in *Part 2 – District Wide Matters / General District-wide matters / NOISE – Te orooro – Noise*, is to 'protect the operation of rail and road infrastructure by identifying locations where acoustic mitigation measures for any new noise sensitive activities are required'. This includes roads within the road and rail noise overlays, including SH1 adjacent to the proposed development.

Figure 3: Road (and rail) noise overlay (orange hatch).

For the activity status to be permitted, the following Noise Rule R16 (reproduced with relevant parts only) applies:

Where:

1. *any new building, intended for a noise sensitive activity, and/or any addition or alteration to an existing building which creates a new habitable room or room that will be occupied by a noise sensitive activity, shall*
    a. *be designed, constructed, and maintained to not exceed the maximum values for indoor design sound levels:*
        i. *road traffic noise within any habitable room – 40 dB LAeq(24hr);*
        …
    b. *be constructed in accordance with the Construction Schedule NOISE-SCHED1;*
2. *Design report: Where 1(a) applies, a report shall be submitted to the council demonstrating compliance with clauses (1)(a) above prior to the construction or addition or alteration of any building containing a noise sensitive activity. In the design:*
    a. *the design for road traffic noise shall take into account future permitted use of the road, either by the addition of 3 dB to predicted sound levels or based on forecast traffic in 20 years' time;*
    …
3. *If windows must be closed to achieve the maximum indoor design sound levels in clause 1a, or if a building is constructed in accordance with NOISE-SCHED1, the building must be designed, constructed and maintained with a mechanical ventilation system the meets the requirements in NOISE-S1.*

The highest SH1 noise exposure on a proposed new SH1 adjacent residentially developed lot (without bunding or fencing) is expected to be in the order of 60 dB $L_{Aeq(24hr)}$. With a building façade with an ajar window for ventilation providing approximately 15 dB reduction, internal noise levels would be 45 dB $L_{Aeq(24hr)}$ – this is 5 dB above the rule internal design sound level criterion. Mechanical ventilation may therefore be required to be installed as per bullet point 3 of the rule to allow closing of windows when desired for noise control. With windows closed, most facades would typically achieve well in excess of 20 dB reduction, therefore the dwelling facades are not expected to need enhancement.

This demonstrates that almost all of the development area would not need assessment against the District Plan rule, and where assessment is required (within the road noise overlay area), compliance would easily be achieved. The detailed assessment at the substantive stage will more closely align the proposed lots with the noise contours, would investigate the further quality improvements from installation of bunds and/or fences (for which a 10 m buffer is currently set aside), appropriateness of setbacks as currently indicated and assess where sites within the overlay are at sufficiently low noise levels to avoid site specific assessment.

Highway designation conditions in Part 3 of the Partially Operative Appeals Version of the District Plan include conditions 11-14 which require a highway construction noise and vibration management plan. Implementation of a highway construction noise and vibration management plan will avoid unreasonable construction noise and vibration and reduce effects should the timing of the highway works occur when new dwellings are established.

4. Pegasus Boulevard noise effects on new residential lots

Pegasus Boulevard is the primary means of access to the Pegasus Township. It is not included within the District Plan road and rail noise overlay therefore provisionally there is not expected to be any need to setback or acoustically insulate or ventilate these properties. Assessment of noise exposure, comparison to industry criteria, and consideration of District precedents for acoustic insulation would be carried out at the substantive application stage before determining if any acoustic insulation consent condition would be appropriate.

5. Appropriateness of current noise standards within the development

Presently in the PODP proposed development sites are zoned SPZ(PR). Neighbouring sites are RLZ and the Natural Open Space Zone (NOSZ) to the east is a buffer to Pegasus Township residential activities primarily in the Medium Density Residential Zone (MRZ).

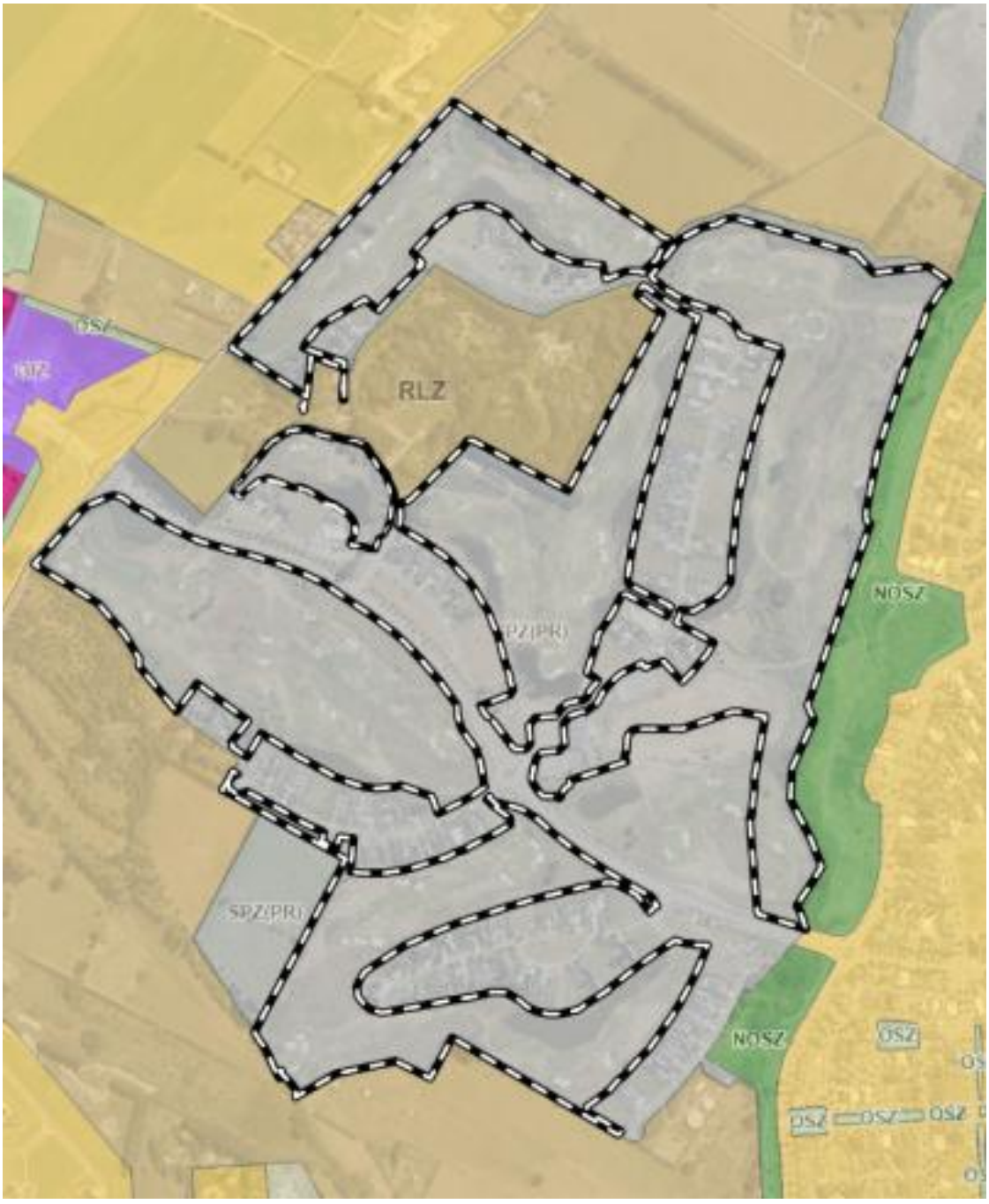

Figure 4. Current zoning.

Noise limits from *Table Noise-2 Noise limits* (part only as relevant) *in Part 2 – District-wide matters / General District-wide matters / NOISE - Te orooro – Noise* are as per Table 1.

Table 1. Applicable noise limits in the development and other relevant zones.

Maximum noise level at or within the boundary[1] of any site receiving noise from the activity, where the site receiving noise is zoned			
	Daytime 7:00am-10:00pm	**Night-time 10:00pm-7:00am**	
Residential Zones	50 dB LAeq	40 dB LAeq	70 dB LAF(max)
Local Centre Zone, Neighbourhood Centre Zone	60 dB LAeq	40 dB LAeq	70 dB LAF(max)
Open Space Zone, …, Special Purpose Zone (Pegasus Resort)	55 dB LAeq	45 dB LAeq	75 dB LAF(max)
Town Centre Zone, Mixed Use Zone	60 dB LAeq	50 dB LAeq	80 dB LAF(max)
Rural Zones, Natural Open Space Zone	50 dB LAeq	40 dB LAeq	65 dB LAF(max)
[1] For sites in Rural Zones the boundary is the notional boundary			

At 55 dB L_{Aeq} during the daytime and 45 dB L_{Aeq} / 75 dB L_{Amax} during the night time the development area SPZ(PR) zoning is slightly more lenient than the 50 dB L_{Aeq} daytime and 40 dB L_{Aeq} / 70 dB L_{Amax} nighttime residential zone limits.

However the zoning anticipates some housing in limited parts of the zone. It is relevant that these limits match the guidance limits in NZS 6802:2008 *Acoustics – assessment of environmental noise* s8.6.2. In summary, the noise standards for the existing SPZ(PR) Zone are appropriate to manage new residential development on the Site. Even if the more stringent standards typical for residential zones in the PODP are applied, the proposed development is capable of compliance.

The existing zone rules can be restrictive for some types of activities that seek to locate in commercial zones. There is potential to remedy this through conditions of consent at the substantive stage, and note that commercial zones are commonly integrated into areas with residential activities.

Before the substantive report, noise surveys of the existing commercial activities should be undertaken to investigate whether any mitigation would be required of those established activities. Mitigation of noise from modest commercial or hospitality activities, if required, is usually a practicable combination of screening, revisiting timing of tasks, and treatments to mechanical services systems.

6. Rural noise at existing rural to new residential interfaces

There is some potential for seasonal noise from rural areas such as harvesting to exceed the SPZ(PR) noise limits – however this is typical to residential/rural interfaces over the District including Pegasus Town and Ravenswood. The smaller lifestyle blocks adjacent to the development and the rural land to the north and south are already subject to lower noise limits at the other nearby residential developments and at rural dwellings therefore there is not expected to be a significant constraint placed on existing neighbouring rural activities from the addition of the proposed development.

7. Construction noise and vibration affecting existing noise-sensitive activities

Existing properties within the development or immediately adjacent to the development will be subject to noise from land development activities and ultimately construction within the created lots. Construction noise and vibration, even with mitigation, are anticipated to be at levels elevated above typical noise levels in established residential environments therefore NZS 6803:1999 *Construction noise* is commonly referred to as a baseline for appropriate construction noise levels and management measures.

In the PODP rule Noise-R3 in Part 2 – District-wide matters / General District-wide matters / NOISE – Te orooro – Noise, the activity status is permitted in the following case:

Where:

1. *noise from construction shall comply with the following maximum noise limits when assessed in accordance with NZS 6803:1999 Acoustics - Construction Noise:*
    a. *when received in any Residential Zones, or within the notional boundary of any Rural Zones:*
        i. *7:30am - 6:00pm Monday to Saturday: 70 dB LAeq;*
        ii. *all other times: 45 dB LAeq;*
    b. *when received in any Commercial and Mixed Use Zones and Industrial Zones:*
    c. *at all times: 70 dB LAeq;*
2. *vibration from construction shall be assessed in accordance with DIN 4150-3:2016, Vibration in Buildings – Part 3: Effects on Structures, and shall comply with the relevant limits in Tables 1 and 4 of that standard.*

The District Plan therefore expects assessment of both noise *and* vibration. High-level assessment of these aspects will be provided in the substantive application. It should be noted that residential land-development of areas adjacent to existing residential land is typical to the general trend of urban expansion.

8. Author

The author of this report, Mark Lewthwaite, is the Head of Department for the Acoustic Team at Powell Fenwick. Mark completed a Bachelor of Engineering with Honours from the University of Canterbury in 2002.

His expertise, from 20 years undertaking acoustic engineering work, is broad across building and environmental noise fields. Relevant areas of experience include:

+ Measurement and assessment of environmental noise
+ Prediction of noise from road and air traffic sources
+ Prediction of noise from construction activities
+ Interpretation of District Plan and other planning rules, and New Zealand Standards
+ Reporting related to rezoning / Notice of Requirement/ Fast-Track etc. for changing land uses
+ Peer review of noise reports accompanying applications, on behalf of Councils

In addition to Affiliate membership with the Acoustical Society of New Zealand, Mark has been a Chartered Professional Engineer with Engineering New Zealand (formerly the Institute of Professional Engineers New Zealand) for 16 years, his practice field descriptions reflecting he has demonstrated his acoustic competence across multiple reassessments.

A disclaimer is included in the footer of page 1. Despite that disclaimer, Powell Fenwick acknowledges that this report will be relied on by the Minister for Infrastructure and any other invited commenters / participants that are involved in the consideration of a referral application under the Fast-track Approvals Act 2024, and this disclaimer does not prevent that reliance.