



Tahimana, Stagecoach Road, Upper Moutere

Construction Noise & Vibration Assessment

Project No. 22001

Date: July 2026

Client: Tahimana Limited

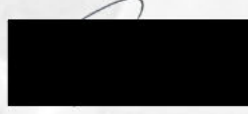
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1. Introduction

Bladon Bronka Acoustics Ltd (BBA) has been engaged to provide a Construction Noise and Vibration (CNV) assessment to accompany the resource consent application for the proposed Tahimana residential development at Stagecoach Road, Upper Moutere, Tasman. The Tahimana project has been referred to the Fast-track Approvals Act 2024 (“FTAA”) process.

The project is to subdivide and develop land for the purpose of establishing a residential and rural lifestyle development on approximately 70 hectares of land off Stagecoach Road, Tasman, in the Tasman District. The project will include works within the Stagecoach Road, Dicker Road corridors.

Noise and vibration levels arising from construction activities have been calculated at the nearest receivers for comparison with the provisions of the Tasman Resource Management Plan (TRMP), with recommended mitigation measures to minimise effects.

The report author records that they have read and agree to and comply with the Environment Court’s Code of Conduct for Expert Witnesses as specified in the Environment Court’s Practice Note 2023. This report is within the author’s area of expertise, except where the report states that the author relies upon the reports of other experts. The author has not omitted to consider any material facts known to them that might alter or detract from the conclusions reached.

2. Site and Surrounding Area

The site location (identified as lot 1 and 3 DP 450728) is presented in Figure 1. The proposed site layout showing the location of the works is presented in Appendix A.

The proposed development site and surrounding area is situated within the Rural 3 Zone in accordance with the Tasman Resource Management Plan (TRMP).

In addition to the site development, roading upgrades to Stagecoach Road are also proposed. The extent of the upgrades are indicated in Figure 2.



Figure 1. Site location (outlined in Blue)

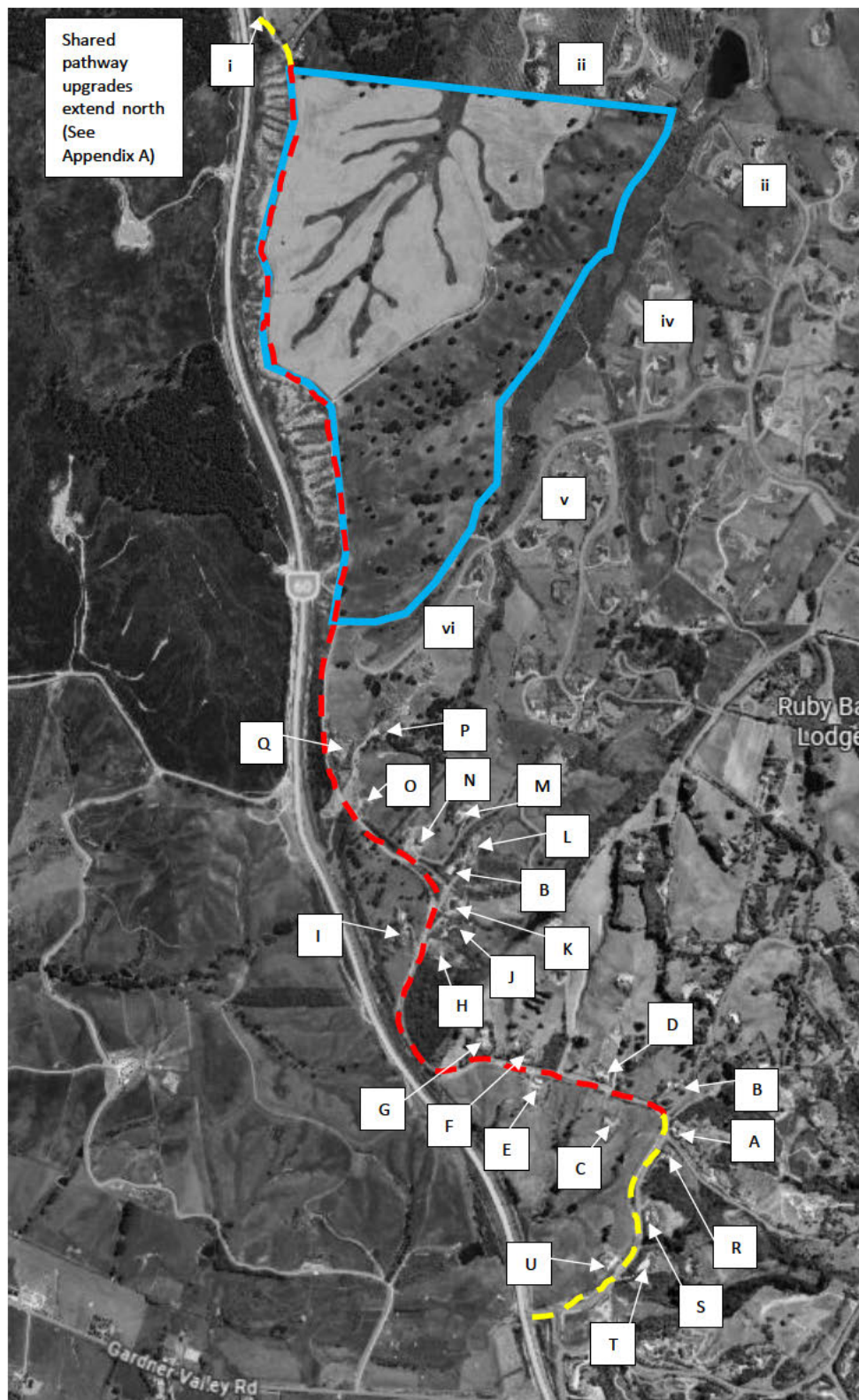


Figure 2. Extent of Stagecoach Road and shared path upgrades (red), development site (blue), shared path upgrades (yellow)

2.1. Potentially Affected Receivers

The nearest properties to the development site and road upgrades are listed in Table 1 and Table 2. All other properties are set back further from the application site and will be subject to lower levels of noise and vibration than predicted for the below properties.

Table 1. Nearest receivers to the proposed Stagecoach Road works

Ref (Fig 2)	Address	Min. distance to works, m	Ref (Fig 2)	Address	Min. distance to works, m
A	58 Stagecoach Road	30	J	154 Stagecoach Road	41
B	66 Stagecoach Road	44	K	158 Stagecoach Road	11
C	77 Stagecoach Road	70	L	162 Stagecoach Road	95
D	78 Stagecoach Road	8	M	174 Stagecoach Road	145
E	99 Stagecoach Road	50	N	178 Stagecoach Road	31
F	100 Stagecoach Road	13	O	186 Stagecoach Road	23
G	106 Stagecoach Road	45	P	196 Stagecoach Road	110
H	150 Stagecoach Road	24	Q	208 Stagecoach Road	11
I	151 Stagecoach Road	30			

Table 2. Nearest receivers to the proposed site

Ref (Fig 2)	Address	Min. distance to works, m	Ref (Fig 2)	Address	Min. distance to works, m
i	190 Williams Road (Hawks Valley Sculpture Gallery)	260	iv	26 Westmere Dr	186
ii	194 Horton Road	115		24 Westmere Dr	250
	198 Horton Road	50		22 Westmere Dr	276
	207 Horton Road	25		20 Westmere Dr	189
	201 Horton Road	25	v	4 Amber Rise	200
	205 Horton Road	105		36 Westmere Dr	175
	195 Horton Road	90		43 Westmere Dr	138
iii	69 Sunset Dr	170		61 Westmere Dr	135
	71 Sunset Dr	225	vi	63 Westmere Dr	70
	65 Sunset Dr	360		65 Westmere Dr	95
	61 Sunset Dr	280		67 Westmere Dr	145
iv	30 Westmere Dr	150		196 Stagecoach Road	240
	28 Westmere Dr	220		208 Stagecoach Road	277

Table 3. Nearest receivers to the share pathway upgrades

Ref (Fig 2)	Address	Min. distance to works, m	Ref (Fig 2)	Address	Min. distance to works, m
i	58 Dicker Road	11	i	166 Williams Road	170
	57 Dicker Road	20	R	50 Stagecoach Road	22
	95 Baldwin Road	270	S	36 Stagecoach Road	17
	120 Baldwin Road	110	T	22 Stagecoach Road	24
	154 Williams Road	220	U	25 Stagecoach Road	20

3. Project Criteria

The TRMP contains specific operational noise limits applicable within the Rural 3 Zone; however, these limits are not specifically intended or appropriate to manage construction noise effects.

The TRMP does not contain a dedicated construction noise framework applicable to the proposed subdivision works in a Rural 3 Zone, but advises codes of practice and the best practicable option approach should be applied as appropriate. However, Rule 16.8.2.1A in relation to Temporary Activities may be interpreted to include road construction.

Rule 16.8.2.1A states temporary activity that is construction, maintenance, or demolition work, is a permitted activity if it complies with noise limits provided for in NZS6803:1999 Acoustics Construction Noise.

Accordingly, it is proposed construction noise is assessed against project-specific noise standards derived from NZS 6803:1999 Acoustics – Construction Noise. NZS6803 is the nationally recognised standard for the assessment and management of construction noise and is commonly adopted throughout New Zealand for major infrastructure and land development projects where construction activities are temporary in nature.

Additionally, in the absence of any specific criteria within the TRMP, guidance is taken from German Industrial Standard DIN 4150-3 (1999): *Structural Vibration – Part 3 Effects of Vibration on Structures* to inform suitable construction vibration limits for construction project.

The proposed construction noise and vibration criteria and Resource Management Act 1991 obligations for the proposed for the project are summarised below.

3.1. Construction Noise Criteria

The relevant noise limits are summarised below. It is understood that construction activities will take place between the hours of 7.30am and 6.00pm, from Monday to Saturday. However, the more restrictive Sunday and non-daytime noise limits are also provided for reference.

- Monday – Saturday, 7.30am – 6pm: 70dB LAeq and 85 dB LAmax
- Sunday's and public holidays 7.30am – 6pm: 55dB LAeq and 85 dB LAmax
- At all other times: 45dB LAeq and 75 dB LAmax

The above noise limits account for a construction period longer than 20 weeks, and apply at 1m from the closest façade of any occupied building in accordance with NZS 6803: 1999 'Acoustics – Construction noise'.

Noise from construction is highly intermittent. Therefore, in accordance with NZS 6803:1999, the construction noise has been assessed over a 30-minute period, assuming typical plant operation "on-times".

3.2. Construction Vibration Criteria

It is proposed to adopt the German Industrial Standard DIN 4150-3 (1999): *Structural Vibration – Part 3 Effects of Vibration on Structures* to inform suitable construction vibration limits for construction project. These limits are designed to prevent cosmetic building damage and are typically adopted across New Zealand. The vibration limits of DIN 4150-3 have been reproduced in Table 4.

Table 4. Summary of DIN 4150-3(1999) building damage vibration criteria

Vibration Peak Particle Velocity (mm/s)						
Line	Type of Structure	Short-term vibration			Long-term Vibration	
		Vibration at the foundation at a frequency of			Vibration at horizontal plane of highest floor at all frequencies	Vibration at the foundation or any floor level at all frequencies
		1 – 10Hz	10 – 50Hz	50 – 100Hz*		
1**	Buildings used for commercial purposes, industrial buildings, and buildings of similar design	20	20 to 40	40 to 50	40	10
2	Dwellings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	5
3**	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 & 2 and are of great intrinsic value e.g. historic building	3	3 to 8	8 to 10	8	2.5

* For frequencies above 100Hz, at least the values specified in this column shall be applied

** Greyed out rows not applicable to this project.

3.3. Resource Management Act 1991

The Resource Management Act 1991 (RMA) is the principal legislation regarding land use. Section 16 (1) of the RMA describes the overarching duty to limit noise emissions as follows:

Duty to avoid unreasonable noise

- (1) *Every occupier of land (including any premises and any coastal marine area), and every person carrying out an activity in, on, or under a water body or the coastal marine area, shall adopt the best practicable option to ensure that the emission of noise from that land or water does not exceed a reasonable level.*

4. Proposed Works

The earthworks and roading upgrade programme covers three primary work streams, broadly sequenced as follows:

- **Phase A: New Stagecoach Road formation** — cut and fill to form the road corridor from the State Highway 60 connection to the subdivision entry, including cycleway/walkway formation.
- **Phase B: New Stagecoach Road pavement** — lay imported basecourse in compacted layers to design specification.
- **Phase C: Subdivision earthworks** — cut and fill to form internal road formations (Roads A-G) and residential house site platforms across all development stages.

Note: The terms phasing and staging of Stagecoach Road upgrades in this Noise Assessment are separate (unless stated otherwise) to the phasing of earthworks and staging of subdivision within the development site.

Construction activity will typically occur during the daytime period, Monday to Saturday only, with the following being a broad outline of the programme:

- Phase A – Stagecoach Road earthworks (formation): likely to be a 14-week aggregated period, however there is likely to be breaks in the programme allowing for access for residents, availability of staff/equipment and weather events, therefore works may extend beyond the 14-week period.
- Phase B – Stagecoach Road pavement (basecourse laying) – 9 weeks as an aggregate time, however with breaks allowing for access for residents, availability of staff/equipment and weather events, works may extend beyond the 9-week period.
- During Phases A and B there will periods of respite when there are breaks in the programme and/or noisy works do not occur.
- Phase C - Internal Subdivision Road formation (Roads A-G) – 11 weeks. Note this is a cumulative timeline as the bulk earthworks will be phased, (potentially over a number of construction seasons) as detailed on Sheet 30 of the Staig and Smith Ltd Development Plan set.
- Internal road pavement – 4 weeks. Note this is a cumulative timeline as road pavement and provision of services will be staged (potentially over a number of construction seasons) aligning with the phasing of earthworks and staging of the Subdivision, which in turn will be influenced by section sales.
- House Site Platforms (141 allotments) – 30 weeks (cumulative time), these will be created intermittently over a longer period of time generally aligning with the Phasing of earthworks shown on Sheet 30 of the Staig and Smith Development Plan set.

- Total Earthworks programme (covering Stagecoach Road external to the Subdivision Site and all earthworks within the Subdivision for roading, building platforms and services) – 55 weeks as a cumulative total number of weeks but spread out over the phasing of works and staging of the Subdivision.
- Phase B and C may run concurrently.
- Phase C, including Internal Roads and Building Platforms, will run over multiple periods aligning with the Subdivision Earthworks phasing together with the Subdivision Staging. A 10-year Consent lapse period has been sought to allow for fluctuations in market demand.

5. Noise Assessment

Typical construction plant for a project of this size are summarised in Table 5. In order to calculate the construction noise levels at the nearest receivers, source noise data for representative construction plant has been selected from NZS 6803: 1999 which makes reference to the British noise standard BS 5228-1: 1997.

Where appropriate, noise levels have been selected from the updated BS 5228-1: 2009 version of the standard, or based on previous BBA measurement data. Light construction works (such as light handheld tools, manual digging, etc.) are also expected to occur on site for intermittent periods. These activities are not considered to generate any significant noise or vibration and therefore have not been assessed.

The L_{max} noise levels from the proposed activities will typically be no more than 15 dB greater than the L_{Aeq} values for each activity.

Table 5. Construction plant / activities source reference levels

Construction activity	Activity Sound Pressure Level at 10m L_{Aeq} (continuous)	Estimated typical 'on-time', per 30-minute assessment period	Location
20t Excavator	71 dB	100%	Extent of site
13t Vibratory Roller	75 dB	50%	Extent of site
6 wheeled trucks removing / bringing material to site	60 dB	4 passbys	Roadways
Watercart	65 dB	50%	Roadways
Grader	67 dB	1 passby	Roadways
Asphalt/Chip Spreader	66 dB	2 passby's	Roadways

For the shared pathway upgrades, it is estimated that only the excavator and roller machinery will be required.

Based on the above reference noise data and the separation distances from the works to the nearest receivers, potential noise levels arising from the proposed construction activities have been calculated at the closest receptors and are displayed in Appendix A. The estimated noise levels take into account a + 3dBA façade reflection and estimated on-times of the equipment per 30-minute assessment period and the screening where appropriate.

As shown in Appendix A, construction noise levels have been predicted to achieve the 70dB $L_{Aeq(30min)}$ long term construction noise limits at all receivers, except for the following:

- Phase A & B: New Stagecoach Road formation and pavement:
 - <7 dBA exceedance at 78 Stagecoach Road;
 - <4 dBA exceedance at 158 and 208 Stagecoach Road and 58 Dicker Road; and,
 - <3 dBA at 100 Stagecoach Road.

The Phase A & B predicted levels and exceedances are given for the worst-case operations with works outside each receiver. The typical construction noise levels experienced for the majority of the construction period (when works occur at other areas of the road) will be lower than the maximum predictions, achieving the limits of 70dB L_{Aeq} / 85dB L_{AFmax} at all receiver facades.

The Phase C earthworks for the subdivision are predicted to comply at all receivers.

6. Vibration Assessment

The following activities related to excavation and compaction of material have the highest potential to generate perceptible vibration. Reference vibration levels and compliance distances for these activities are presented below:

Where activities occur at a greater distance from a given receptor, the predicted vibration levels will be lower.

Table 6. Estimated maximum construction vibration

Construction activity	Reference Vibration Level	Minimum compliance distance to achieve PPV 5 mm/s
Excavator	PPV 0.8 mm/s at 9m	3m
Vibratory Roller	PPV 5.3 mm/s at 7.6m	8m

Works are not proposed within the above setback distance to any property, therefore vibration levels at all properties are predicted to comply with the Line 2 DIN-4152 limits for building damage.

However, given the closest property to the proposed works, 78 Stagecoach Road, is 8m from the works location it is recommended that vibration monitoring is undertaken at this property at the commencement of vibratory roller use to verify the limit is achieved in-situ. This is suggested as a condition of consent in Section 8.

7. Assessment of Construction Effects

Noise levels during construction are predicted to exceed the long-term construction noise limit (70 dB L_{Aeq}) by up to 7 dBA during the earthworks and road laying. These levels will only occur at selected receivers, for limited durations and intermittently during Phase A & B when works occur outside the affected houses. Works for this part of the project will be complete within an estimated 23 weeks.

External noise levels of up to 77dB L_{Aeq} (incident level of 74dB L_{Aeq}) are expected to result in internal noise levels of ~54dB L_{Aeq} in the most exposed rooms with windows closed (assuming older existing timber buildings). The associated noise effects from this internal noise levels are described below:

“Concentration may be affected but residential activities can generally continue.”¹

The calculated noise levels are typical of construction noise experienced from other similar scale and roading projects. The exceedances apply when works occur directly outside each specific affected receiver during the improvement works to Stagecoach Road only. This aspect of the programme is planned to take 23 weeks to complete for the entire length. Therefore, exceedances at any given property should occur for less than a week.

Given the temporary and intermittent nature of construction noise, and the magnitude of the predicted levels, construction noise emissions are not expected to exceed a reasonable level with regards to s16 of the RMA due to the short duration of the noisiest works.

All the predicted vibration levels are within the threshold at which building damage could be expected, below with the DIN 4150-3(1999) building damage vibration criteria. To help manage effects it is recommended that all occupied buildings within 50m are advised in writing at least three days prior. A condition of consent is recommended (see section 8) to ensure the closest receivers are advised of works.

For the majority of the construction period, construction vibration is expected to be imperceptible at all surrounding receiver sites. Therefore adverse vibration impacts are not expected at the surrounding properties.

To minimise potential construction noise and vibration effects on the nearest receivers as far as practicable it is recommended that a Construction Noise and Vibration Management Plan (CNVMP) is prepared prior to commencing works. This shall be implemented and maintained throughout the duration of the project. The CNVMP will detail the site-specific physical mitigation methods to be implemented as well as other general mitigation methods, including how construction activities/equipment are to be operated and selected with consideration to reducing noise disturbance to neighbouring receivers as far as practicable. It will also outline the process for monitoring, community liaison and procedures for handling of any complaints.

¹ Association of Australasian Acoustical Consultants (AAAC) – Guideline for interpreting and applying NZS 6803:1999 (V1.0)

A detailed CNVMP can't be produced at this stage due to a lack of a detailed design and construction details. However, it would be typical and appropriate to condition that the CNVMP is produced and shared with Council ahead of commencement on site.

With the implementation of the proposed mitigation measures to ensure noise and vibration emissions are considered to be minimised as much as practicable.

8. Recommended Conditions

The following are recommended as conditions of consent:

1. Construction works on the site must only take place between 7.30am and 6.00pm Monday to Saturday. There shall be no works undertaken on Sundays, public holidays or between 24 December and 2 January inclusive. The restriction on hours of works does not apply to low noise-generating activities, such as site set-up or staff meetings painting, planting or electrical fitout, which may occur outside of these hours provided they are generally inaudible off-site.
2. The Consent Holder may undertake activities outside the hours specified above under special circumstances. The Consent Holder must use their best endeavours to limit the frequency and duration of any such activities and must minimise the effects on dwellings and businesses. The activities that are considered to constitute 'special circumstances' may include, but not necessarily be limited to, connection of services where such connections are required during low demand periods, works necessary prior to major forecast weather events to secure the work site.
3. All potentially affected receivers (identified in Table 1 and Table 2 of the BBA acoustic assessment report) shall be provided written notice of construction timeframes and the expected duration of noise and vibration generating activities, at least 3 days prior to activities occurring, noting the date of such work commencing, work hours and expected durations. Contact details for the project community liaison manager/site manager shall be provided to the occupants of these dwellings for any queries or complaints.
4. The noise from any construction activity shall comply and be measured and assessed in accordance with the requirements of NZS6803:1999 Acoustics – construction noise. The exception to the specified noise levels in those standards relates to the update to Stagecoach Road where the following predicted noise levels may occur for limited duration of time for the properties specified below:
 - 77 dBA at 78 Stagecoach Road;
 - 74 dBA at 158 and 208 Stagecoach Road and 58 Dicker Road; and,
 - 73 dBA at 100 Stagecoach Road.
5. Vibration monitoring shall be undertaken on the building foundations at 78 Stagecoach Road (if the owner consents) at the start of vibratory roller use outside the property. If the measured vibration levels exceed 5mm/s PPV, works shall be stopped and alternative methodology, equipment and/or mitigation shall be implemented to achieve 5 mm/s PPV prior to re-contouring works continuing.

6. The Consent Holder, prior to any works proceeding on site, or within the Stagecoach Road corridor, must prepare a Noise and Vibration Management Plan which shall detail the site specific physical mitigation methods to be implemented, including how construction activities and equipment are to be operated and selected with consideration to minimising noise disturbance to neighbouring receivers as far as practical. This plan is also to outline the process of monitoring to ensure condition compliance and set out community liaison processes and procedures including complaint procedures. The plan shall be shared with Council ahead of commencement on site.

9. Conclusions

BBA has assessed the potential construction noise and vibration emissions arising from the proposed Tahimana residential development at Stagecoach Road, Upper Moutere, Tasman.

Construction noise levels predominantly meet with the noise limits except for exceedances of up to 7 dBA at selected receivers during new Stagecoach Road formation and paving (Phase A & B only). This phase of the works will be completed in 23 weeks total for the full length of road. Therefore exceedances at any affected receiver are expected to occur for less than a week.

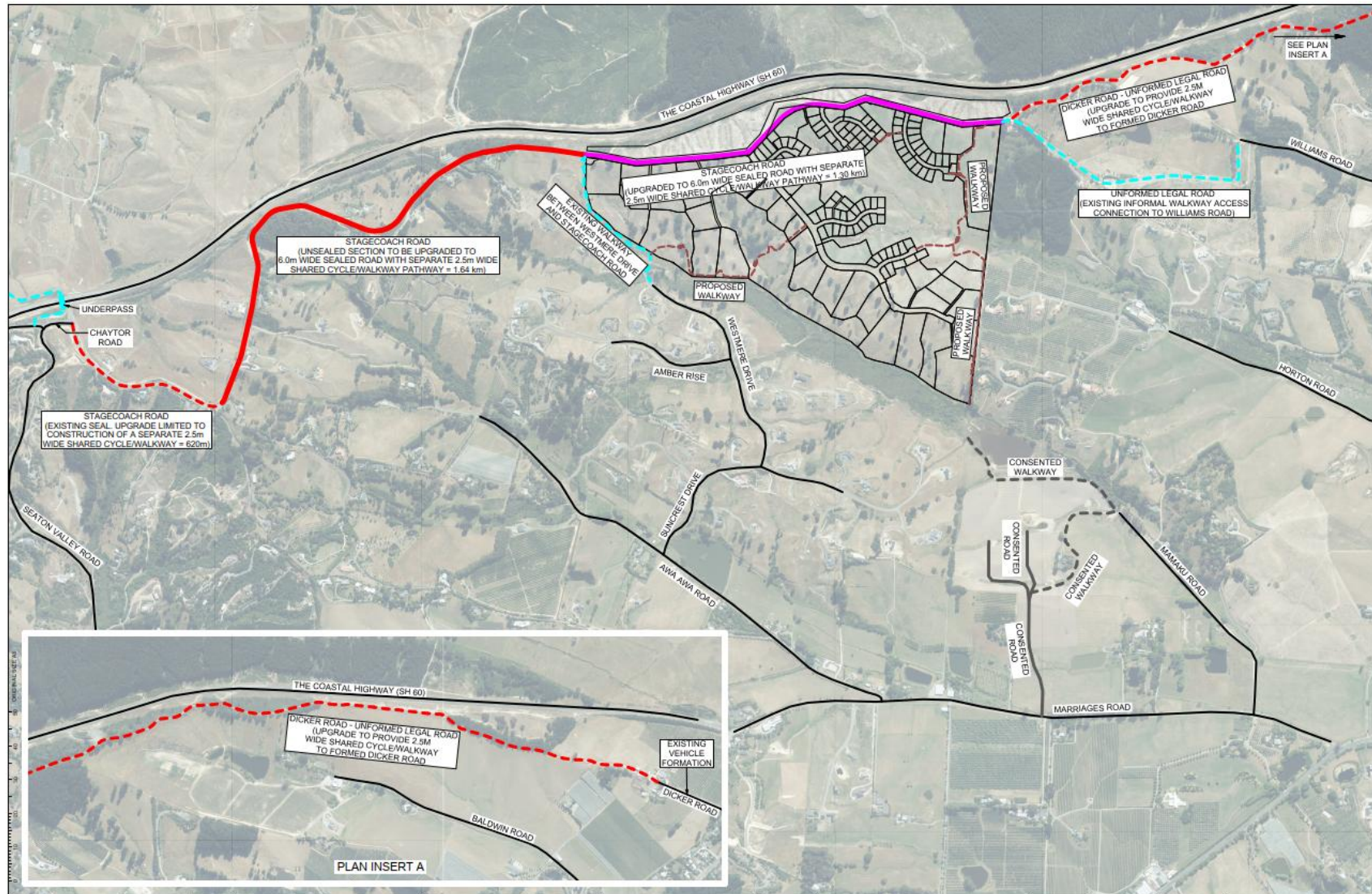
The predictions are based on worst case predictions for plant operating at the closest expected distance from each activity to each receiver. These activities will only occur for a limited durations when works occur outside an effected receiver and the noisiest parts will be completed relatively quickly. Therefore, given the duration and magnitude of these levels, with prior written advice provided to adjacent sites, noise emissions are not expected to exceed a reasonable level with respect to s16 of the RMA.

All the predicted vibration levels are below the threshold at which building damage could be expected, complying with the DIN 4150-3(1999) building damage vibration criteria. There may be occasions when the vibratory roller at the closest location to a receiver generate slightly perceiveable vibration, but these will not occur for long and/or be regular occurrences.

Written notification is to be provided to these receiver's at least three days prior to the works commencing. It is also recommended that vibration monitoring be undertaken at the first commencement of the use of the vibratory roller outside 78 Stagecoach Road to ensure the cosmetic building damage limits are achieved.

With the proposed mitigation methods, no significant adverse effects at the surrounding receivers are expected. With the management methods and mitigation proposed, noise and vibration emissions arising from the proposed works will be consistent with the objectives TRMP.

Appendix A: Proposed Site



Appendix B: Predicted Construction Noise Levels

Construction activity	ESTIMATED NOISE LEVELS: Phase A & B																
	SPL Noise level at 1m from most exposed facade based on closest equipment distance																
	Displayed as: dB LAeq,30mins / LAmax																
	58 Stagecoach Rd	66 Stagecoach Rd	77 Stagecoach Rd	78 Stagecoach Rd	99 Stagecoach Rd	100 Stagecoach Rd	106 Stagecoach Rd	150 Stagecoach Rd	151 Stagecoach Rd	154 Stagecoach Rd	158 Stagecoach Rd	162 Stagecoach Rd	174 Stagecoach Rd	178 Stagecoach Rd	186 Stagecoach Rd	196 Stagecoach Rd	208 Stagecoach Rd
20T Excavator	64 / 79	61 / 76	57 / 72	76 / 91	60 / 75	72 / 87	61 / 76	66 / 81	64 / 79	62 / 77	73 / 88	54 / 69	51 / 66	64 / 79	67 / 82	53 / 68	73 / 88
13T Vibratory Roller	65 / 80	62 / 77	58 / 73	77 / 92	61 / 76	73 / 88	62 / 77	67 / 82	65 / 80	63 / 78	74 / 89	55 / 70	52 / 67	65 / 80	68 / 83	54 / 69	74 / 89
Articulated Dump Trunk	53 / 68	50 / 65	46 / 61	65 / 80	49 / 64	61 / 76	50 / 65	55 / 70	53 / 68	51 / 66	62 / 77	43 / 58	40 / 55	53 / 68	56 / 71	42 / 57	62 / 77
Watercart	55 / 70	52 / 67	48 / 63	67 / 82	51 / 66	63 / 78	52 / 67	57 / 72	55 / 70	53 / 68	64 / 79	45 / 60	42 / 57	55 / 70	58 / 73	44 / 59	64 / 79
Grader	60 / 75	57 / 72	53 / 68	72 / 87	56 / 71	68 / 83	57 / 72	62 / 77	60 / 75	58 / 73	69 / 84	50 / 65	47 / 62	60 / 75	63 / 78	49 / 64	69 / 84
Asphalt/Chip Spreader	56 / 71	53 / 68	49 / 64	68 / 83	52 / 67	64 / 79	53 / 68	58 / 73	56 / 71	54 / 69	65 / 80	46 / 61	43 / 58	56 / 71	59 / 74	45 / 60	68 / 83

Construction activity	ESTIMATED NOISE LEVELS: Shared Path Works							
	SPL Noise level at 1m from most exposed facade based on closest equipment distance							
	Displayed as: dB LAeq,30mins / LAmax							
	58 Dicker Road	57 Dicker Road	95 Baldwin Road	120 Baldwin Road	154 William Road	166 Williams Road	50 Stagecoach Road	36 Stagecoach Road
20T Excavator	73 / 88	68 / 83	45 / 60	53 / 68	47 / 62	49 / 64	67 / 82	69 / 84
13T Vibratory Roller	74 / 89	69 / 84	46 / 61	54 / 69	48 / 63	50 / 65	68 / 83	70 / 85

Construction activity	ESTIMATED NOISE LEVELS: Phase C													
	SPL Noise level at 1m from most exposed facade based on closest equipment distance													
	Displayed as: dB L _{Aeq,30mins} / L _{Amax}													
	190 Williams Road	194 Horton Road	198 Horton Road	207 Horton Road	201 Horton Road	205 Horton Road	195 Horton Road	69 Sunset Dr	71 Sunset Dr	65 Sunset Dr	61 Sunset Dr	30 Westmere Dr	28 Westmere Dr	26 Westmere Dr
20T Excavator	46 / 61	53 / 68	60 / 75	66 / 81	66 / 81	54 / 69	55 / 70	49 / 64	47 / 62	43 / 58	45 / 60	50 / 65	47 / 62	49 / 64
13T Vibratory Roller	47 / 62	54 / 69	61 / 76	67 / 82	67 / 82	55 / 70	56 / 71	50 / 65	48 / 63	44 / 59	46 / 61	51 / 66	48 / 63	50 / 65
Articulated Dump Trunk	35 / 50	42 / 57	49 / 64	55 / 70	55 / 70	43 / 58	44 / 59	38 / 53	36 / 51	32 / 47	34 / 49	39 / 54	36 / 51	38 / 53
Watercart	37 / 52	44 / 59	51 / 66	57 / 72	57 / 72	45 / 60	46 / 61	40 / 55	38 / 53	34 / 49	36 / 51	41 / 56	38 / 53	40 / 55
Grader	42 / 57	49 / 64	56 / 71	62 / 77	62 / 77	50 / 65	51 / 66	45 / 60	43 / 58	39 / 54	41 / 56	46 / 61	43 / 58	45 / 60
Asphalt/Chip Spreader	38 / 53	45 / 60	52 / 67	58 / 73	58 / 73	46 / 61	47 / 62	41 / 56	39 / 54	35 / 50	37 / 52	42 / 57	39 / 54	41 / 56
Construction activity	ESTIMATED NOISE LEVELS: Phase C													
	SPL Noise level at 1m from most exposed facade based on closest equipment distance													
	Displayed as: dB L _{Aeq,30mins} / L _{Amax}													
	24 Westmere Dr	22 Westmere Dr	20 Westmere Dr	4 Amber Rise	36 Westmere Dr	43 Westmere Dr	61 Westmere Dr	63 Westmere Dr	65 Westmere Dr	67 Westmere Dr	196 Stagecoach Road	208 Stagecoach Road		
20T Excavator	46 / 61	45 / 60	48 / 63	48 / 63	49 / 64	51 / 66	51 / 66	57 / 72	54 / 69	51 / 66	46 / 61	45 / 60		
13T Vibratory Roller	47 / 62	46 / 61	49 / 64	49 / 64	50 / 65	52 / 67	52 / 67	58 / 73	55 / 70	52 / 67	47 / 62	46 / 61		
Articulated Dump Trunk	35 / 50	34 / 49	37 / 52	37 / 52	38 / 53	40 / 55	40 / 55	46 / 61	43 / 58	40 / 55	35 / 50	34 / 49		
Watercart	37 / 52	36 / 51	39 / 54	39 / 54	40 / 55	42 / 57	42 / 57	48 / 63	45 / 60	42 / 57	37 / 52	36 / 51		
Grader	42 / 57	41 / 56	44 / 59	44 / 59	45 / 60	47 / 62	47 / 62	53 / 68	50 / 65	47 / 62	42 / 57	41 / 56		
Asphalt/Chip Spreader	38 / 53	37 / 52	40 / 55	40 / 55	41 / 56	43 / 58	43 / 58	49 / 64	46 / 61	43 / 58	38 / 53	37 / 52		