

Technical Advisor Review

Noise Addendum: Review of Noise and Vibration Submissions 1-23 Road Tasman Street Residential Development

Title	Acoustic Advisor Addendum (Comment on Submissions) 1-23 Tasman Street	Report No	1
SR	528330	Status	WCC Issued
Date	30 March 2023	Discipline	Acoustics (Noise)
Authors	Lindsay Hannah and Edward Dyer	Issued to	Monique Zorn Snr Resource Consents Planner

1.0 Background

The background to the Application (SR513053) dates back to 2021 when a Resource Consent was submitted for a redevelopment of the site incorporating two buildings, each building being 10 levels high. The Resource Consent was lodged to Council in October 2021. Following Further Information Requests (FiR) and comment from Council advisors the Applicant submitted a revised design which among other things changed the height of the two buildings to 8 levels. Other changes made included an increased number of car parks which was a function of the increased apartment numbers. The Application was granted Resource Consent in November 2022 (SR500876). The current Resource Consent (SR528330) is based on the plans for SR500876 (Condition 1); however consent is sought to increase the height of the buildings back to the first proposed heights in 2021 being 10 levels.

2.0 Resource Consent Conditions

Section 5.11 of the Application (AEE) advises that under consent application SR 500876 there were a total of 69 consent conditions. **Condition 23** includes the requirement for a Construction Noise and Vibration Management Plan (CNVMP) to be prepared by a suitably qualified and experienced person. **Condition 23** also specifically includes an assessment of both construction noise and vibration levels.

Condition 37 requires noise levels (including earthworks and demolition) are to comply with the limits set for residential and commercial based activities set out in “NZS 6803:1999 Acoustics Construction Noise”. **Condition 38** requires vibration levels (including earthworks and demolition) are to comply with the limits set out in DIN 4150-3:2016 “Structural Vibration – Part 3: Effects of vibration on structures”. **Conditions 66** requires sound insulation to the habitable spaces achieves $D_{nt} + C_{tr} > 30$ dB and **Condition 67** that habitable spaces achieves 7.5L/s/p. Finally **Condition 63** set limits for boundary noise and **Condition 64** Fixed Plant noise. **Condition 65** sets limits for commercial operations with respect to electronic sound systems and any commercial spaces. In our view this is a comprehensive set of conditions.

The Applicant notes subject to appropriate amendments to Condition 1 “General” to list the architectural and landscape plans submitted with the current application, the other conditions (Conditions 2 to 69 inclusive) **remain endorsed**, subject to any ‘fine-tuning amendments’ that are deemed necessary, which would include noise and vibration matters.

3.0 Purpose

Resource Consent (SR528330) has been notified and affected parties have provided submissions. The Acoustic Team has reviewed each submission relative to the comments for noise and vibration only and provide the following review as an addendum to the original noise assessments.

4.0 Submissions

We have read the submissions where noise and vibration are highlighted as a concern by the community. We have given consideration to noise and vibration matters raised in those submissions and provide the following comment:

4.1 Submitter 5 – Tyrone Anderson. 242 Taranaki Street

Summary of Comment from Submitter: The submitter does not provide any specific comment on noise or vibration but seeks relief that if consented that no construction work take place on weekends, and no work take place during mornings or nights. No specific time frames are proposed where the Submitter makes reference to mornings or nights.

WCC Advisor Comment: There are already requirements limiting noise limits during mornings and at night, as the proposed conditions note that compliance must be achieved with NZS 6803:1999 Acoustics Construction Noise. This standard provides permitted limits as a function of time of week (weekdays, Saturdays, Sundays and Public Holidays) as well as function of the time of day, for example a long duration project (as proposed here) is permitted to produce a level up to 70 dB L_{Aeq} and 85 dB L_{Amax} at the façade of a building on a weekday and Saturday between 7.30am and 6.00pm. The limit reduces to 45 dB L_{Aeq} and 75 dB L_{Amax} weekdays between 8.00pm and 6.30am. Thus stricter limits are in place for evenings and mornings. Refer to Table 3 and Table 2 of NZS6803 for recommended upper limits of construction noise at residential and commercial sites. I have not reproduced this table as it is copyright.

4.2 Submitter 12 – National Army Museum (NZDF) Waiouru

Summary of Comment from Submitter: The submitter does not provide any specific comment on noise or vibration effects but does raise concerns around residents from the new development objecting to future functions of the Pukeaha National War Memorial Park and events that take place at Pukeahau. The Submitter notes complaints recently occurred in Auckland but does not provide any further information around these matters for review. The relief sought is decline the consent outright.

WCC Advisor Comment: The matters raised by the Submitter appear to relate to ‘reverse sensitivity’ which is a term from the New Zealand planning system that describes the noise impacts of newer uses on existing activities, in this case the concern of the Submitter is that the occupants of the new development may object to existing or future activities at the Pukeahau.

The proposed new apartments will be required to be sound insulated (**Condition 66**) and have suitable ventilation (**Condition 67**) in accordance with Central Area rule 13.6.1.2.1 (Noise Insulation) and Rule 13.6.1.2.2 (Ventilation). The purpose of these rules is to provide adequate sound insulation and protection from external sound as well as suitable air changes via ventilation to the apartments habitable rooms. The Applicants noise assessment by MDA notes *“Based on the proposed layout of the buildings, we expect that the external sound insulation requirement of the District Plan can be complied with, subject to appropriate glazing configurations. Final wall and ceiling linings would be determined as the design progresses”*

Based on our knowledge of the nature and scale of events occurring Pukeahau, such events would likely also be deemed to be permitted temporary activities which means an activity that is of a non-repetitive, transient nature [(including cultural or similar events and outdoor gatherings) that does not exceed three days duration. I further note reviewing noise complaints back for the last two years we can confirm that that the Acoustic Team has not received any noise complaints with respect to activities occurring at Pukeahau from adjacent sites.

Finally I make note that with respect to construction noise effects received off site, **Condition 35** notes no work can take place on any day when any notable event is schedule for Pukeahau on hour before and one hour after the publicly event time.

4.3 Submitter 13 - Graeme Hildred. 91 Eden Street Island Bay

Summary of Comment from Submitter: The submitter notes *'The Resource Consent decision doesn't appear to seriously look at the impact of the construction on residents in neighbouring properties and how these can be mitigated'* .

WCC Advisor Comment: The submitter raises a host of concerns which we address further below. We note that a detailed suite of conditions have been recommended for noise and vibration including the Applicant having to comply with NZS6803:1999 Acoustics – Construction' Noise (noise emissions) and 'DIN 4150-3:1999 "Structural Vibration – Part 3: Effects of vibration on structures' (vibration). In addition a condition is recommended to ensure a draft Construction Noise and Vibration Management Plan (CNVMP) which must also include assessment shall be in line with s.16 Best Practical Option (BPO). The condition also requires that were instructed the CNVMP must be amended by the Applicant to address proven deficiencies in its operation.

The Submitter also makes the comment in the relief sought that there is 'the possibility of night work'. The Resource Consent conditions as applied for does not request any works to be conducted at night, but does note that if night works were applied for that there is due process to follow. WCC Acoustic Team has a process for review of night works, however in cases such as this where there is Resource Consent in place the Applicant must abide by these conditions as drafted. Night works is never permitted for convenience reasons, and there is a high threshold of proof for any night works and any application is reviewed case by case. We also note that just because something occurs at night, this too does not automatically mean the limits are not complied with or the noise is excessive or unreasonable.

The submitter also makes the comment *"The Acoustical Design Report predicts that the car parking activities won't comply with the District Plan noise levels"*. Section 3.3.1 Car Park Noise of the Marshall Day Acoustics Assessment dated 21 December 2022 states "we predict that noise from car parking activities would comply with the District Plan noise limits".

Relief Sought (Submitter 13).

The submitter seeks the following relief to change the conditions:

- Relief 1 - Reduce the hours of operating to 7.30am to 6.00pm. This means clause 36 is not required. Reasoning for this is it is certain that complaints will be made by one or more tenants from 4 Sussex Street.

WCC Advisor Comment: I note that if a formal complaint is received the Compliance Monitoring Officer (CMO) would be required to investigate any complaint i.e if complaint is received this will not automatically mean that work cannot continue until 6.00pm under the Conditions, unless of course on investigation by the CMO there is suitable evidence and proof that the complaint was justified. Simply noting that you will complaint to activate the clause in this condition would not automatically mean that hours are reduced back to 6.00pm, as stated in Condition 36 "there must be discussion between the CMO and Consent Holder". There must also be suitable evidence.

- Relief 2 - Remove the quiet setup time in clause 35b. Due to the proximity of the 54 bedrooms to the site it is likely any activity at 6.30am will disturb some of the tenants. Nothing is quiet at 6.30am.

WCC Advisor Comment: I note the Condition is to allow for quiet set up only, which is no plant or operations and from our experience relates to staff arriving at site and preparing for the day such as attending tool box meetings.

- Relief 3 - Change Saturday to no work.

WCC Advisor Comment: New Zealand Standard NZS6803: 1999 sets the same limits for construction work Monday to Saturdays, these limits and days from NZS6803 are adopted by WCC for construction work.

- Relief 4 - Change so no work to be done at night-time over the whole construction period.

WCC Advisor Comment: The Applicant does not apply for night time works. Refer to comments above regarding the process for any application for night time work.

- Relief 5 - Include a condition that independent noise monitoring sensors are in place so it can be determined that the developer doesn't exceed the limits set out in Table 2 and Table 3 of the 'NZS6803:1999 Acoustics – Construction'.
- Relief 6 - Include a condition that independent vibration monitoring sensors are in place so it be determined that the developer doesn't exceed the limits set out in German Standards 'DIN 4150-3:2016 'Structural Vibration – Part 3'.

WCC Advisor Comment: The Applicant is required to prepared a CNVMP for approval by WCC CMO. The Plan will be required to include noise and vibration monitoring procedures as well as complaints procedures. We also note that having measurements from loggers which are not witnessed or have someone present to identify that the source is from the site would only be able to be used as limited background information.

- Relief 7 - Include a condition that the boundary car park wall will be soundproofed so car parking activities comply with the District Plan noise levels for tenants in the bedrooms in the residential complex at 4 Sussex Street.

WCC Advisor Comment: The Council cannot enforce conditions with respect to specific sound insulation requirements as requested. The Resource Management Act is effects based and as such how the Applicant achieves compliance with a rule is left for the Applicants advisors to assess. As noted above Section 3.3.1 Car Park Noise of the Marshall Day Acoustics Assessment dated 21 December 2022 states “we predict that noise from car parking activities would comply with the District Plan noise limits”. **Condition 63** set limits for boundary noise and **Condition 64** Fixed Plant noise

WCC Advisors Summary Submitter 13.

The key concern for the submitter is noise and vibration including from demolition. I note the recommended conditions require

1. Compliance with 'NZS6803:1999 Acoustics – Construction' for noise emission.
2. Compliance with 'DIN 4150-3:2016 'Structural Vibration – Part 3' for vibration.
3. Compliance with the s.16 RMA BPO duties to follow best practise to manage noise.
4. Preparation of draft CNVMP, which must be reviewed by WCC CMO. This procedure will include review from myself and the acoustic team

4.4 Submitter 14 Basin Reserve Apartment complex Body Corporate 323504 (BC) 4 Sussex Street, Mount Cook Wellington

Summary of Comment from Submitter: Submitter 14 is similar to Submitter 13 (with respect to noise and vibration) and has been addressed above in our review. The matters that differ between Submitters 13 and 14 are addressed as follows.

The submitter raised concern with respect to vibration effects on the basin reserve complex land and buildings. At present the Operative District Plan does not have any specific rules for vibration, however the Resource Management Act does define noise as ‘including vibration’ and as such in our opinion vibration effects must be assessed and adverse effects remedied. As we note above the recommended **Condition 38** requires vibration levels (including earthworks and demolition) are to comply with the limits set out in DIN 4150-3:2016 “Structural Vibration – Part 3: Effects of vibration on structures’.

The use of DIN 4150-3 is widespread in New Zealand, and it has a history of successful implementation in projects involving construction activities. Many District Plans or resource consent conditions have adopted its use, especially for larger projects of this nature and scale. The standard has been adopted for major infrastructure projects throughout New Zealand, including the Waterview Connection (road and tunnel in Auckland), MacKay's to Peka Peka expressway (Wellington), Victoria Park tunnel (road and tunnel in Auckland), and the Marsden Point Rail Link, to name for example.

Experts in vibration have noted the adoption of a data-driven approach to the implementation of DIN 4150-3 is considered pragmatic, and promotes comprehensive monitoring and assessment of vibration activities during construction works. The key criterion in the standard relates to the avoidance of structural building damage. The standard recognises the difference between the structure of residential, historic buildings, and commercial buildings.

The criteria in DIN 4150-3:2016 is expressed in peak particle velocity (PPV) and are intended to avoid superficial damage to buildings. The use of the PPV metric in vibration is generally viewed as the most basic and direct parameter for a vibration event to connect with the stress increments in the ground or a built structure.

Relief Sought (Submitter 14).

WCC Advisor Comment: The Applicant has commissioned Marshall Day Acoustics as its advisor for both noise and vibration. This reporting is at the cost to the developer. In addition it is noted that at the time MDA prepared their report the project had not progressed sufficiently to provide a final acoustic assessment of all items and that construction details, plant selection and construction methodology had yet to be finalised, although an indication on some of these items had been provided to the Consultant, thus MDA prepared a provisional assessment based on the Resource Consent Architectural drawings prepared by Athfield Architects. Additional detail on likely constructions has been provided by the Project Architect.

It is noted that the MDA report states, "The buildings at 4 Sussex Street and 22 Sussex Street would be most at risk in terms of construction noise exceedances" we have recommended conditions that require the Applicant comply with NZS6803:1999 Acoustics – Construction' and DIN 4150-3:2016 'Structural Vibration – Part 3'. The Applicant has noted they endorse these. In addition the recommendation for the preparation of draft CNVMP, which must be reviewed by WCC CMO is made.

4.5 Submitter 15 The Wellington Seventh-day Adventist Church

Summary of Comment from Submitter: The submitter notes *'does not wish to specifically endorse this development however it does not – generally – seek to oppose development either'*. The submitter notes with respect to noise and vibration that the church wishes to conduct services without undue interference from noise and vibration. Comment is also made with respect to conducting funerals.

The submitter seeks the following relief to change the conditions:

- We request that Council require the final CNVMP to restrict noise works and activities to the church hours from 9.30am to 12.30pm on Saturdays.

WCC Advisor Comment: The Applicant can of right conduct works that comply with the permitted limits set out in the noise and vibrations standards, which includes work on Saturdays from 7.30am to 6.00pm. We would however support the Applicant engaging in discussions with the Church regarding services, including funerals.

The submitter seeks the following relief to change the conditions:

- We request that Council require the Applicant be restricted to noisy works for funerals, being up to to three hours.

WCC Advisor Comment: The Applicant can of right conduct works that comply with the permitted limits set out in the noise and vibrations standard. What specifically defines 'noisy' would be subjective to the Church or anyone else making this assessment. It would be a civil matter between the Applicant and Church with respect to how funeral services and 'stop work' matters were handled.

- We request that Council require the final CNVMP include the contractors nominated contact person and that any noisy works the church must be notified 48 hrs in advance.

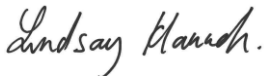
WCC Advisor Comment: We would support the CNVMP including the contact details of the contractors nominated contact, this is typical for a CNVMP. We would also support the Applicant giving updates to the community and surrounding sites on upcoming works. We see no reason why the CNVMP cannot include the contact details for the Applicant and procedures with respect to notification of upcoming works, such as emails comms for example. Although a civil matter with respect to any 'stop work' (because we cannot enforce work to stop if it is compliant) we would support the Applicant engaging in discussions with the Church regarding such services. We would also support the CNVMP including a section on any agreed matters set out between the church and Application.

4.6 Submitter 18 Aaron Burke 10 Dornoch Place Papakowhai Porirua

WCC Advisor Comment: Submitter 18 raises the same matters in the submissions we discuss above and as such comment has already been provided.

5.0 Summary

We have reviewed the submissions where noise and vibration are highlighted as a concern by the community. We have given consideration to noise and vibration matters raised in those submissions and provided further comment. Submitters raise a number of important matters. We note there is potential for adverse noise and vibration effects if not suitable managed, thus If consent is granted we recommend the adoption of the conditions (for noise and vibration) as set out under existing SR SR500876. Please advise if you have any further questions.



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Date: 30 March 2023

Technical Advisor Review - Noise

1-23 Road Tasman Street Residential Development

Title	Acoustic Advisor Report 1-23 Tasman Street – Residential Campus Development		
SR	500876	Report No	2
Date	21 October 2021	Status	WCC Issued
Authors	Lindsay Hannah Whitney Cocking	Discipline	Acoustics (Noise)
		Issued to	Lisa Hayes Resource Consents Planner

The Acoustic Team has reviewed the Application by **One Tasman Development Limited Partnership** for 1-23 Tasman Street, Wellington.

A group of supporting documents have been submitted as part of the Resource Consent Application for review this includes the Urban Perspectives Ltd Resource Consent and Assessment of Effects (AEE) entitled '**Assessment of Effects on the Environment Proposed Central Area Re-development 1-23 Tasman Street Pukeahu Mount Cook**' (the AEE).

We have also reviewed the Marshall Day Acoustics acoustic report entitled "**One Tasman Pukeahu Park Resource Consent – Preliminary Rp 001 r04 20210604 dated 15 September 2021**" (the noise report). Importantly Marshall Day advises that their assessment is only a provisional assessment on the ability of this project to meet the noise requirements of the Wellington City Council District Plan.

The site is presently occupied by a residential complex known as Tasman Gardens Apartments (1 Tasman Street) and the now-vacated Tasman Street Vet Clinic (23 Tasman Street). The redevelopment of the site involves the demolition of the existing buildings and the construction of new Central Area buildings comprising a residential complex of 213 units. The existing buildings will be removed, and the site redeveloped into a residential campus, featuring two nine story apartment towers, a two-level carpark building along with a mix of 2- 3 story high townhouses, set in a landscaped environment.

In addition to the residential component, there is also car parking included as part of the development. This area would consist of 69 spaces in a basement car park and 44 spaces at ground level. There is also non-residential activity proposed for the site being a café (commercial operations), proposed to be located on the corner of Tasman Street and Old Buckle Street.

The activity will produce temporary noise from construction and vibration with operational noise being produced by people, traffic and fixed plant. Servicing noise including from truck delivery for example will also form part of the development. Commercial based noise from the café will also occur as it is expected there will be outside seating.

There will be two apartment blocks these apartment tower buildings will be steel diagrid base isolated buildings, with the carpark being a conventional concrete frame and the 3-town house blocks a mix of concrete, steel and timber. Main access to the carpark, North and South Tower buildings will be from Tasman Street, with secondary pedestrian access to the North Tower and to the townhouses being available from Buckle Street. The tower buildings will be base isolated. With respect to construction, there will also be site works, construction and excavation.

Following the bulk excavation works the piles will be driven, then the detailed excavation works to the building's foundation will be undertaken, which will then be followed by preparation of the on-grade floor slab excavation trade works. There will be driven pile associated with Stage 2 northern tower apartments, Stage 3 – Carpark and Stage 5 Southern tower apartments.

The piling method is a function of various conditions including ground conditions and is set by civil engineering requirements. As noted in the Application the piling method will be 'dropdown or impact piling' which generates higher levels of vibration when compared with other piling techniques such as continuous flight auger piling rig (CFA). As the RMA defines noise as 'including vibration' vibration effects must be considered, as has been the case in the MDA acoustic report which refers to piling activity.

Due to the proximity to commercial sites and the adjacent Inner-City By-pass (Te Aro Corridor), the background sound levels are modest to high noise levels during a typical day with lower levels produced in the evening and night.

The AEE at Section **5.3.7 Noise Effects** discusses noise and makes reference to the acoustical noise assessment undertaken by Marshall Day Acoustics (**Appendix 12 of the AEE**). The report addresses the following areas of potential noise effects fixed plant noise, activity noise, construction (including vibration) and external sound insulation of the building façade to protect against external noise sources. To ensure compliance, Marshall Day has proposed a consent condition that requires certification by a suitably qualified person that the external noise insulation and ventilation standards (13.6.1.2.1 and 13.6.2.2) are met. We agree.

In relation to activity noise from day to day operations, Marshall Day has noted the activity can comply i.e. noise from carparking and the café, Marshall Day concludes that the activities will comfortably comply with the 60 dB $L_{Aeq(15\text{ min})}$ activity noise standard. The café is proposed for the corner of Tasman Street and Old Buckle Street. The closest assessment location is the former Mount Cook Police Station, located across Tasman Street. For the purposes of this assessment, Marshall Day has assumed the café would have an outside seated area. The predicted noise level from café activities received at the closest assessment location set out in the noise report is 50 dB $L_{eq(15\text{ mins})}$. Marshall Day concludes the café and car park are separated by a minimum distance of 40 metres with several buildings in between. As a result, their predictions show that the cumulative noise level of these activities would remain within the activity noise limits of the District Plan.

With respect to fixed plant noise Marshall Day state that given that specific details of the proposed fixed plant have yet to be confirmed, Marshall Day recommends the imposition of consent conditions directed at ensuring that all fixed plant, including car park exhaust fans, is designed, installed and operated to comply with the standards set out in Rule **13.6.2.1.1**. We agree.

With respect to construction noise, the Marshall Day report states the District Plan does not address vibration resulting from construction activities. However, the Marshall Day report does provide guidance as to be found in **DIN 4150-3:2016 "Vibrations in buildings – Part 3: Effects on structures"**. We note this Standard is used widely in New Zealand to assess the potential for vibration causing damage to buildings and as noted by Marshall Day frequently referenced in consent conditions issued by Wellington City Council. As noted above we also refer to the fact the RMA defines noise as 'including vibration' and thus is an effect to be assessed for an activity of this nature and scale.

In relation to construction noise, Marshall Day comments that "**at this stage, a construction methodology has not been developed and specifics of any exceedances cannot be reliably determined**". The assessment goes on to state "**Due to the close proximity of some of the surrounding sites, it is highly unlikely that the construction noise limits would be complied with. This is not unusual for construction sites in Wellington**".

Marshall Day in the noise report goes on to state “**Until further details on the construction methodology have been determined, we are unable to comment on whether or not the vibration limits can be complied with. In our experience, impact piling (if used) is likely to cause the highest level of vibration. However, some other activities on a construction site, such as the use of vibratory rollers, can also cause vibration**”. We agree.

In conclusion to noise and vibration, the MDA report recommends a consent condition requiring that construction noise and vibration management plan (CNVMP) be provided to the Council for approval prior to construction activities commencing on site. We support this. In our opinion based on the nature and scale of this development and surrounding sites, it is critical to have a robust set of conditions not only for operational noise and activity but construction noise and vibration. Marshall Day has made recommendations for conditions. We have reviewed and considered these and adopted these recommendations in part.

In summary, we are of the view that:

1. *Day to day operation activity noise effects can be suitably managed by the Applicant so that noise effects remain reasonable.*
2. *Construction noise is unlikely to be able to comply with NZS 6803: 1999 Acoustics Construction Noise at all times and for all activities, however, with a detailed noise management plan and adoption of the BPO (with final approval by CO at WCC) we are of the opinion construction noise can be suitably managed.*
3. *In terms of vibration, we are unable to comment further as no detailed assessment is provided by the Applicant. We can however note that the proposed impact piling and certain activities such as a vibration roller (if used) would cause a level of vibration and depending upon the final locations of these sources could result in effects that are perceptible at times.*

Recommended Noise Conditions

(...) Boundary Noise Emissions

The Consent Holder must ensure noise emission levels when measured at or within the boundary of any fee simple site or at the outside wall of any building on any site, other than the site from which the noise is emitted, shall not exceed the following:

At all times: 60 dBA $L_{Aeq(15 min)}$

At all times: 85 dBA L_{AFmax}

(...) Fixed Plant Noise

The Consent Holder must ensure noise emission levels from fixed plant shall not exceed the following at or within the boundary of any land parcel, or at the outside wall of any building on any site, other than the building or site from which the noise is emitted:

At all times: 55 dB $L_{Aeq(15 min)}$

10pm to 7am: 70 dB L_{AFmax}

Advice Note: *Measurements shall be measured and assessed in accordance with NZS 6801:2008 “Acoustics – Measurement of environmental sound” and NZS 6802:2008 “Acoustics - Environmental Noise”*

(...) Electronic Sound System (Commercial Operations)

The Consent Holder must ensure noise emission level from by any outside electronic sound systems associated with the commercial activities on site shall not exceed 75 dB $L_{Aeq(15 min)}$ when measured over any 2 minute period.

Advice Note: *Measurements shall be made no closer than 0.6 metres from any part of a loudspeaker and at a height no greater than 1.8 metres (representative of the head of a passer-by).*

(....) Construction Noise Hours

The Consent Holder must ensure that construction activities operate between the hours of 7.30am and 6.00pm Monday to Saturday.

(....) Construction Noise

The Consent Holder must ensure that construction activities are managed and controlled so that the noise received at any residential or commercial site does not exceed the limits set out in Table 2 and Table 3 of 'NZS6803:1999 Acoustics – Construction' Noise when measured and assessed in accordance with that Standard.

(....) Vibration (Construction)

The Consent Holder must ensure construction, earthworks and demolition activities must be controlled to ensure any vibration does not exceed the vibration limits set out in German Standard 'DIN 4150-3:1999 "Structural Vibration – Part 3: Effects of vibration on structures'.

(....) Construction Noise and Vibration Management Plan (CNVMP)

The Consent Holder must ensure that not less than 15 working days prior to commencing any construction, activities authorised by this consent, the Consent Holder must submit to Wellington City Councils Compliance Monitoring Officer (CMO) a draft Construction Noise and Vibration Management Plan (CNVMP) for approval. The draft Construction Noise and Vibration Management Plan must be prepared by a suitably qualified and experienced acoustic expert acceptable to Council and include an assessment of construction and vibration levels. The assessment CNVMP shall be in line with s.16 Best Practical Option (BPO). The CNVMP must be amended, where directed by the CMO to address proven deficiencies in its operation.

Advice Note: The Best Practical Option is defined as the best method for preventing or minimising the adverse noise or vibration effects on the environment having regard to 1) the sensitivity of the receiving environment to adverse noise or vibration effects 2) the financial implications and 3) current state of technical knowledge and the likelihood that the option can be successfully applied. Refer to RMA for full definition of BPO.

(....) Construction Noise and Vibration Management Plan Approval

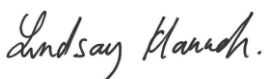
The Consent Holder must not undertake any activities authorised by this consent until the draft Construction Noise Management Plan (CNVMP) has been signed off by Councils Compliance Monitoring Officer as final and is denoted by Council as being 'approved for use' as the final Construction Noise and Vibration Management Plan (CNVMP).

(....) Sound Insulation

Prior to lodging Building Consent, the Consent Holder must submit to Wellington City Councils Compliance Monitoring Officer (CMO) an acoustic design certificate that illustrates that any new habitable room has been designed and specified to achieve a minimum acoustic insulation performance standard of $D_{nT,w} + C_{tr} > 30$ dB. The acoustic design certificate shall provide the calculated $D_{nT,w} + C_{tr}$ for each habitable space type. The Acoustic Design Certificate must be prepared by a suitably qualified and experienced acoustic expert acceptable to Council.

(....) Ventilation

Prior to lodging Building Consent, the Consent Holder must submit to Wellington City Councils Compliance Monitoring Officer (CMO) written certification that illustrates that any habitable room has been designed and specified to achieve a minimum ventilation performance standard of a of 7.5 litres per second per person. The ventilation certification must be prepared by a suitably qualified and experienced person acceptable to Council.



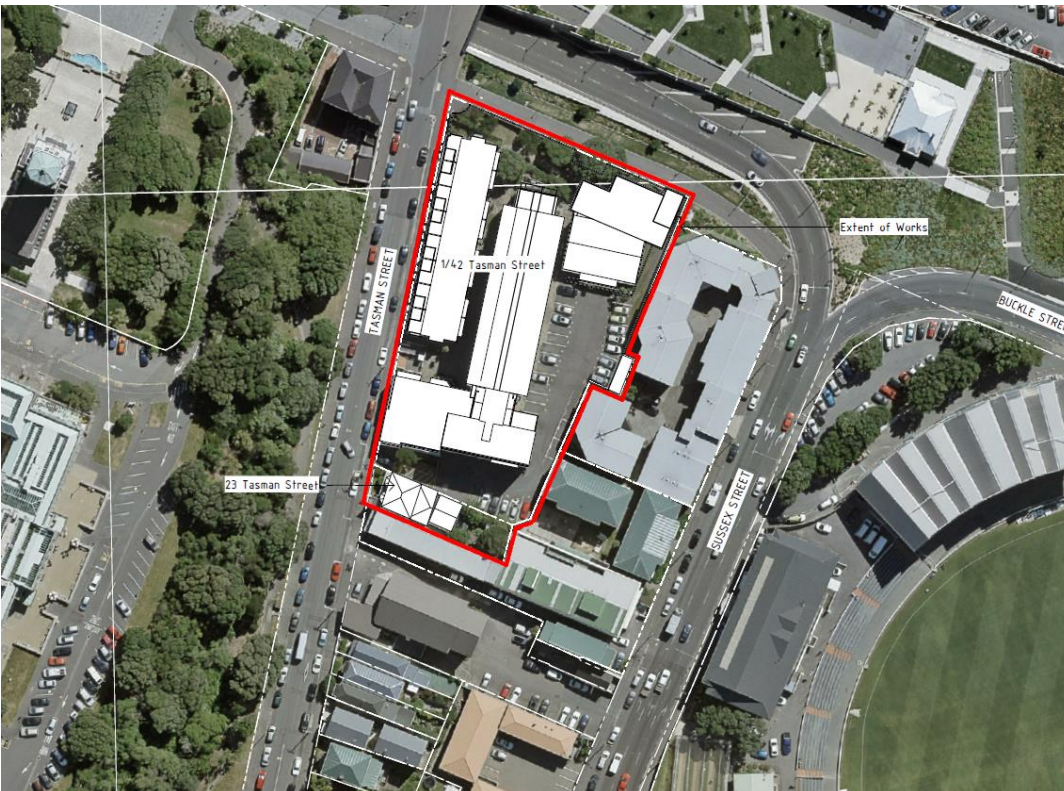
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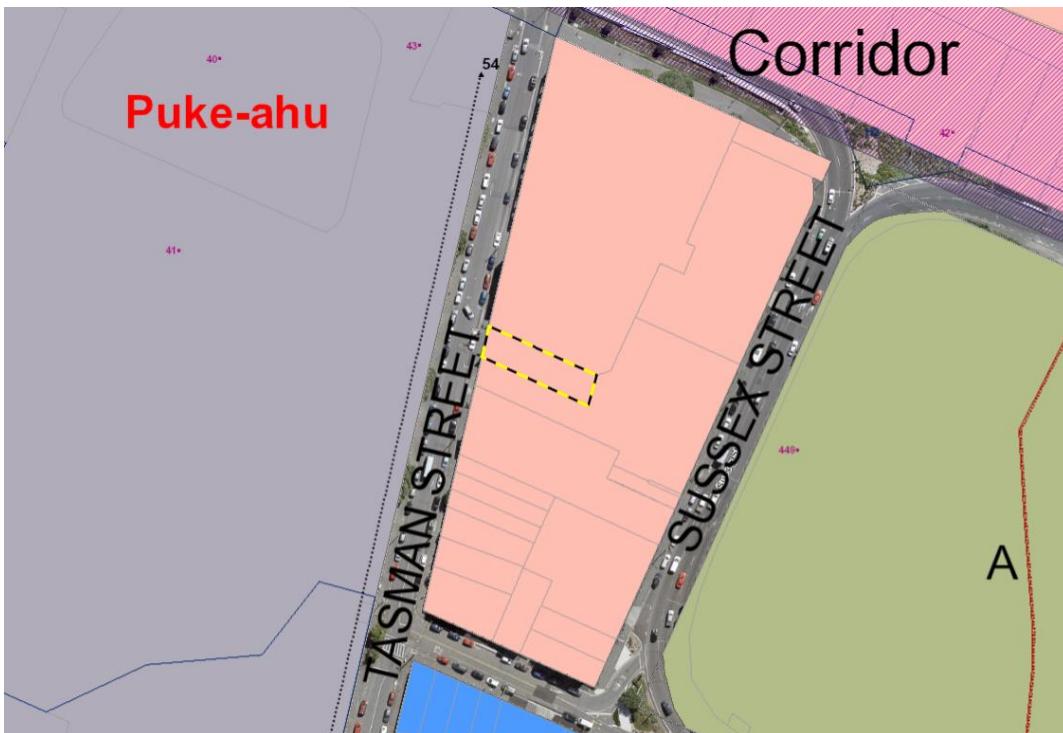


Whitney Cocking.
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21 November 2021

Appendix A: Supporting Information





Activity Areas

- Central Area
- Business 1
- Business 2
- Curtis St Business Area
- Centre
- Urban Development Area
- Airport
- Institutional Precinct
- Inner Residential
- Outer Residential
- MDRA
- Rural
- Open Space A
- Open Space B
- Open Space C
- Conservation
- Sea
- Over water