

Cox River Road Upgrade

Out of hours work application

Asphalt Tie Ins

OOWH application 026

Date 22 January 2025 – Rev 1.5

The following documentation should be read in conjunction with and/or attached to this OOHW application

- Construction plan for the works area
- Project CEMP and the project Noise and Vibration Management Sub
- Construction noise assessment
- Road Occupancy Licences
- Environmental Protection Licence 21697

1. OOHW details

1.1 Summary

Description of works	Asphalt Tie In works		
Location	Proposed for 4 locations <ol style="list-style-type: none">1. Great Western Highway – Western Tie In2. Great Western Highway – Eastern Tie In3. Connector Road Tie In4. Banners Lane Tie In		
Proposed start date	Sunday 30 March 2025	Proposed finish date	Thursday 09 April 2025
Number of shifts	Works are expected to be completed in 2 week block of OOH shifts between the identified dates. No works are to occur on they Saturday 5 th April for compliance with the REF requirements Works are to be undertaken from 6pm to 7am		
Working days and respite information	Up to 11 working nights 6pm to 7am.- no public holidays.		
Working hours	8am to 6am on the dates as identified above. Works are to be in accordance with approved ROL.		

1.2 Contact details

Person requesting OOHW	Kevin Sugiarno	0433 118 304
Foreman supervising work	Khyle Rodgers	0428 738 433
Contractor's 24 hour contact	Community Hotline	1800 749 119
Contractor's Environment Manager	Bradley Cole	0407 782 830
Contractor's Communications Officer	Jake Hoppe	0431 814 227
Transport Project Manager	Anthony Perera	0416 269 505
Transport Communications Officer	Matthew Davis	0427 476 298
Transport Environment Manager	Sam Chesworth Claude Beitz	0400 153 684 0417 754 434

1.3 Proposed scope of work and justification for out of hours work

The proposed out of hours works (OOHW) would include:

Date	Activity	Chainage / Location	Plant Timing	Nearest receiver
Sunday 16 March 2025 to Thursday 27 March 2025	Asphalt placement	Great Western Highway – Western Tie In	Asphalt Paver, Asphalt truck, Franner, Tipper truck, Roller, Light Vehicles, Light tower, line marking truck, Asphalt Profiler	Great Western Highway – Western Tie In - 2 Mid Hartley Road
No works on Saturday 5 April		Great Western Highway – Eastern Tie In		Great Western Highway – Eastern Tie In - 2272 Great Western Highway
		Connector Road Tie In		Connector Road Tie In
		Banners Lane Tie In		- 2360 Great Western Highway Banners Lane Tie In - 5 Baaners Lane

Location of these items are shown in the Figure in Attachment 1, 2, 3 and 4.

Note: Due to the nature of construction activities, the above-mentioned OOH work activities are subject to change due to weather and actual timing of works during the evening activities.

Justification:

The construction activities are to be performed outside of standard construction hours for the safety of site personnel and workers due to the proximity to road traffic and to facilitate the traffic access restrictions required during the works activities. Activities will require works for the tie in adjacent to the roadway therefore lane closure is required to create a safe working space adjacent to the existing Great Western Highway.

It has been determined as part of the project risk assessment that the proposed activities are undertaken outside of standard hours for worker safety adjacent to the Great Western Highway and to comply with ROL times and requirements.

The Project notification has communicated the scheduled activities to the community.

1.4 Proposed activities/equipment

Proposed plant and equipment for each of the identified activities is presented below:

1. Asphalt Placement **Asphalt Profiler (117), Asphalt Paver (114)**, Asphalt truck, Tipper truck, Roller, Light Vehicles, Light tower, Line marking truck

The noisiest plant of each activity is identified in **bold** with maximum predicted noise level (sound power level (SWL), dBA) output defined.

Location Mapping

1. Great Western Highway – Western Tie In



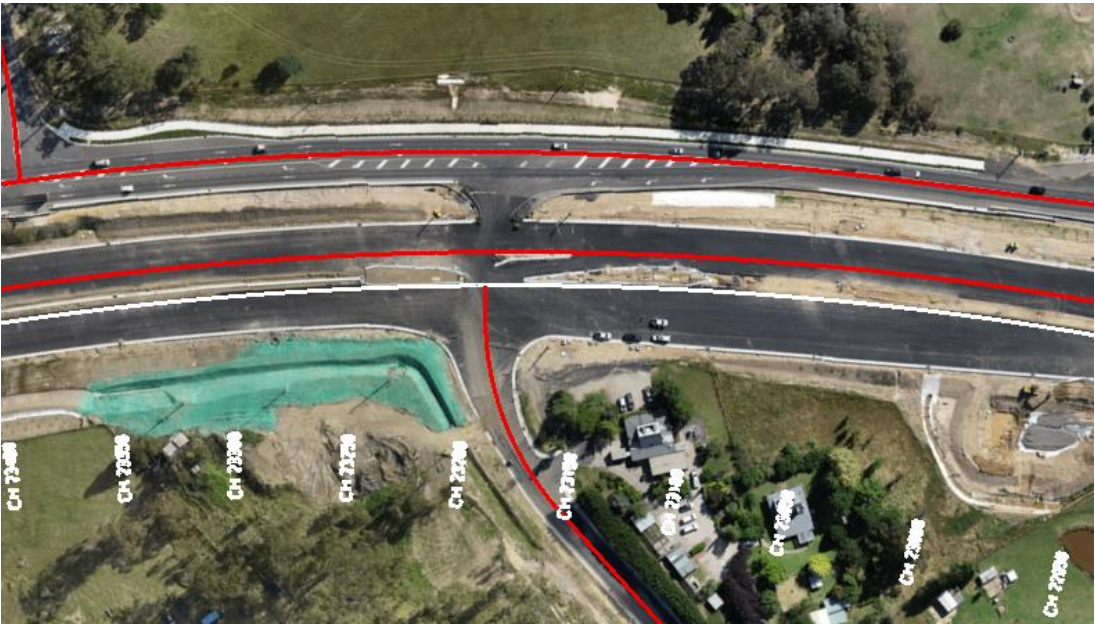
2. Great Western Highway – Eastern Tie In



3. Connector Road Tie In



4. Banners Lane Tie In



1.3 Land use and sensitive receivers

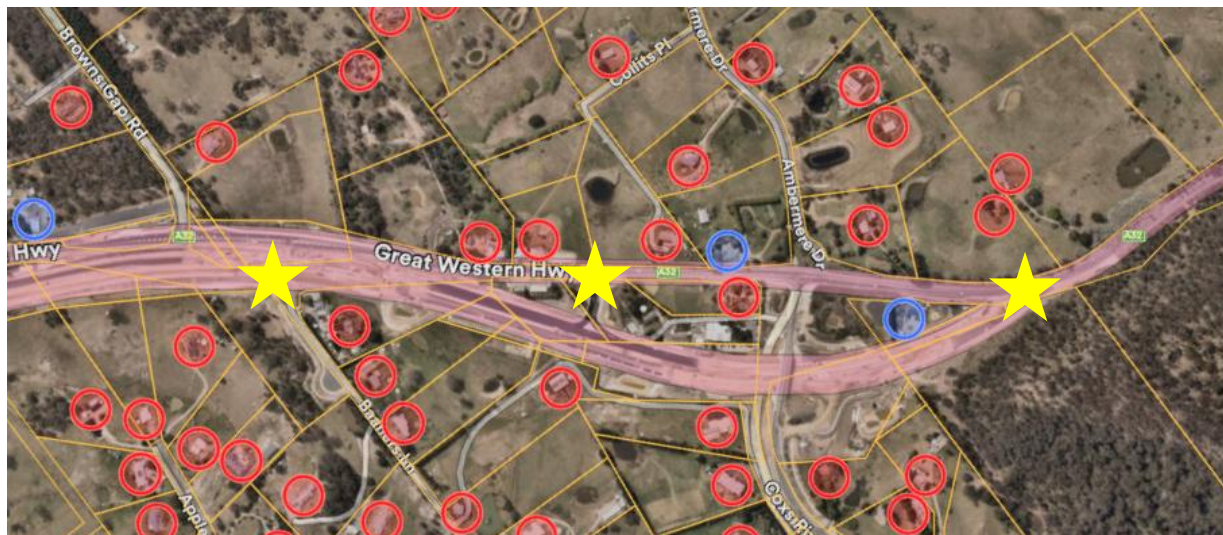
The Cox River Road Upgrade is surrounded by a mix of rural residential and commercial land uses with areas of bushland to the east of the project forming part of the Blue Mountains National Park and Mount Victoria. The proposed work locations are within the rural residential areas as shown on the layout map below.

No medical facilities, childcare centres, schools or religious institutions have been identified in the immediate surrounds of the proposed work areas.

Western Tie In



Eastern Tie In, Baaners Lane, Connector Road



2. Construction noise assessment

2.1 Input data

Noise area category

The Cox River Road Project is identified as noise catchment areas (NCA) 3 and 4 in the REF/ These background noise levels and noise management levels are presented in the table below

Noise Catchment Area	Noise Management Levels Leq(15min) dBA				
	Standard Hours (RBL+10 dB)	OOH Day (RBL+5 dB)	OOH Evening (RBL+5 dB)	OOH Night (RBL+5 dB)	Sleep disturbance (RBL+15 dB)
NCA 3	51	46	42	35	45
NCA 4	51	46	42	35	45

REF data has identified the following RBL for the Cox River Road NCA's.

Day RBL	Evening RBL	Night RBL
41	37	30

Noise assessment type

An individual plant-based construction noise assessment using the REF identified RBL and NML's was completed to represent the proposed activity for the OOH duration. The assessment included all proposed plant and equipment as a worst-case scenario, (i.e. performing in the same location as the same time), to present results for the potential impact relating to the cumulative construction activities during the OOH period.

Background noise levels

Based on the RBLs presented in the REF for the Project (and presented above), the noise affected noise management levels (NMLs) for the project sites as defined by the noise calculation tool for night works would be 35dBA.

Receivers in line of sight

Line of sight varies across the sites depending on location with locations presented in the Table (Section 1.4) the closest residential receivers are proximate to the Baaners Lane and Connector Road locations with The Hartley Vet located adjacent to the proposed works at Baaners Lane. The closest residential receivers to these locations are

- Collector Road: 2360 Great Western Highway (has LoS)
- Banners Lane: 34 Appletree Road (no LoS due to topography)

Residents and road users in the vicinity of the work areas have the potential for line of sight with the typical topographic landform would restrict line of sight for properties greater than 100m for the works areas, therefore this has been utilised in the assessment as the calculated line of sight. Not all locations will be under construction concurrently but rather sites will operate on an individual basis over the proposed schedule. Topography and existing structures and vegetation will intercept line of sight for receivers further along the Great Western Highway and Baaners Lane with receivers shielded from LoS by buildings / sheds and structures on the rural lot arrangement.

3. Summary of impacts

3.1 Predicted noise levels

Noise Estimator (cumulative plant scenario):

Results of the CNVG Noise Estimator tool assessment for this activity are summarised below. This includes a summary of the recommended additional mitigation measures and the corresponding distances for these measures. Full details of the CNVG results are provided within the Appendix. The figure below is a noise impact map showing the noise catchment areas which these additional measures are to be given consideration.

Verification OOH noise monitoring was undertaken for the Project which has identified that the highest contributor to noise levels was passing traffic, particularly truck movements for freight traffic. Noise levels were compliant with the predictions where not impacted by local and freight traffic. Verification monitoring is proposed on the initial night of OOH works for verification at the proposed location.

Noise Estimator (Individual Plant): Cumulative plant scenario

Catchment distances	NML, dB(A)	Predicted noise levels, dB(A)	Recommended additional mitigation measures
Greater than 75dBA (up to 46m) – line of sight	35	75	OOH Not recommended AA, N, PC, SN, R2, DR
Highly Intrusive (up to 118m) – line of sight	35	65	AA, N, PC, SN, R2, DR
Moderately Intrusive (172m) – line of sight	35	55	N, R2, DR, PC, SN
Clearly Audible (363m) behind building / barrier (no LoS for buildings outside 100m due to obstructions)	35	45	N, R2, DR
Noticeable (527m) behind building / barrier (no LoS for buildings outside 100m due to obstructions)	35	40	N

Noise Estimator (Individual Plant): Cumulative plant scenario

	Additional mitigation measures for consideration where feasible and reasonable	Mitigation level (dB(A))	Within mitigation distance (m)
5-10 dB(A) over RBL	N	40	527
10-20 dB(A) over RBL	N, R2, DR	45	363
20-30 dB(A) over RBL	N, PC, SN, R2, DR	55	172
>30 dB(A) over RBL	AA, N, PC, SN, R2, DR	65	118

Note: (1) Notification (N) in the 5-10 dB(A) band is generally not considered reasonable if receivers are shielded by several properties and farm infrastructure which has been reflected in the assessment in term of LoS. However, the Project has adopted a standard circulation distance of 500m for consistency in message to local receivers. Notification will occur for all receivers within the identified Project notification area.

Affected receivers for the proposed activity are presented below for each location and category in the table below:

Category	Location			
	Great Western Highway – Western Tie In	Great Western Highway – Eastern Tie In	Baaners Lane	Connector Road
<i>Highly Intrusive (up to 49m)</i>	- Nil	- Nil	- 5 Baaners Lane Hartey Vet	- 2360 Great Western Highway - 19 Collits Place
<i>Moderately Intrusive (132m)</i>	- Nil	- 2722 Great Western Highway	- 34 Apple Tree Lane	- 5 Ambermere Drive -
<i>Clearly Audible (191m)</i>	- 2510 Great Western Highway - 2508 Great Western Highway - 2 Mid Hartley Road - 38 Bruwalin Place	- 2300 Great Western Highway - 10 Ambermere Drive - 61 Cox River Road - 2297 Great Western Highway (commercial property)	- 1161 Browns Gap Road - 15 Baaners Lane - 2430 Great Western Highway (commercial) - 35 Apple Tree Lane - 33 Apple Tree Lane - 28 Apple Tree Lane - 27 Apple Tree Lane - 24 Apple Tree Lane - 20 Apple Tree Lane - 22 Baaners Lane - 27 Baaners Lane - 2360 Great Western Highway - 2366 Great Western Highway	- 10 Collits Place - 24 Ambermere Drive - 27 Ambermere Drive - 5 Ambermere Drive (commercial property) - 24 Cox River Road - 25 Cox River Road - 2329 Great Western Highway
<i>Noticeable (299m)</i>	- 10 Bruwalin Place - 35 Bruwalin Place	- 18 Ambermere Drive - 2329 Great Western Highway - 41 Cox River Road - 59 Cox River Road - 63 Cox River Road - 81 Cox River Road - 95 Cox River Road - 5 Ambermere Drive	- 2366 Great Western Highway - 12 Apple Tree Lane - 30 Baaners Lane - 43 Baaners Lane - 51 Baaners Lane - 1, Dicker Drive - 2 Dicker Drive - 3, Dicker Drive - 19 Apple Tree Lane - 31 Bony Hills Drive	- 2366 Great Western Highway - 1, Dicker Drive - 2 Dicker Drive - 3, Dicker Drive - 53 Ambermere Drive - 38 Ambermere Drive - 24 Ambermere Drive - 18 Ambermere Drive - 10 Ambermere Drive

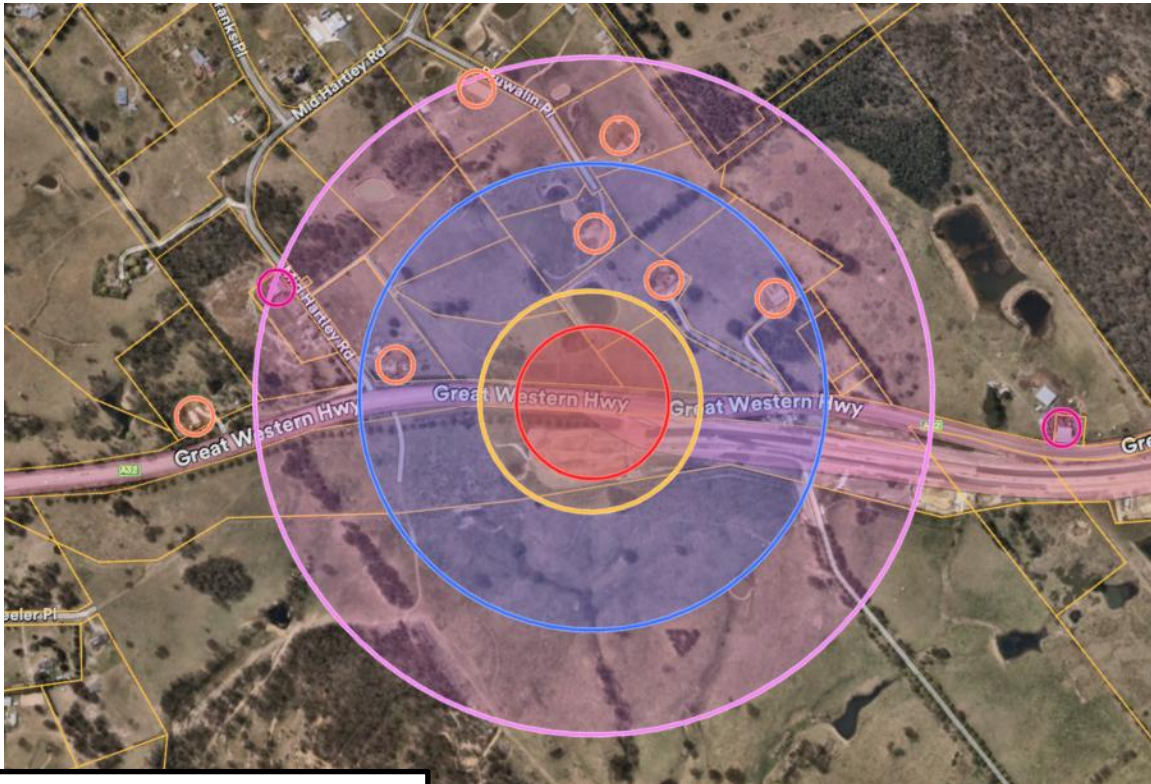
		(Commercial Property)	- 42 Bonny Hills Drive	- 2300 Great Western Highway - 2297 Great Western Highway (commercial property) - 61 Cox River Road - 41 Cox River Road - 40 Cox River Road - 30 Cox River Road - 30 Baaners Lane - 43 Baaners Lane - 51 Baaners Lane - 15 Baaners Lane - 27 Baaners Lane - 5 Baaners Lane
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- Highly Intrusive – 3 receivers
- Moderately Intrusive – 3 receivers
- Clearly Audible – 28 receivers (two duplicates – one identified as highly intrusive, one identified as moderately intrusive)
- Noticeable – 42 receivers (16 duplicate, 6 identified as clearly audible)

Total receivers excluding duplicates: 57 receivers.

The figure below presents the predicted noise for the above-mentioned scenarios.

Western Tie In



- Highly Intrusive – 118m 
- Moderately Intrusive – 172m 
- Clearly audible – 336m 
- Noticeable – 527m 

Eastern Tie In



4. Mitigation and management measures

4.1 General

Of the above assessment results, the Individual plant estimator (Cumulative plant) resulted in no exceedance for highly or moderately intrusive impacts. The cumulative scenario-based results is adopted as the worst-case scenario for the purpose of this assessment and the review of mitigation measures.

The mitigation measures recommended by the RMS Construction Noise Estimator are outlined below and assessed in terms of feasibility.

- Letterbox drop (N = notification) has been recommended for receivers within 527m, in accordance with the standard Project notifications.
- Noise estimator tool indicates that specific notification (SN) should be delivered to the residences within 172m. The specific notification provides additional information and more informative that is provided to more highly affected receivers than covered in general letterbox drops. Receivers that fall within this distance from the proposed activity (as specified in the Table in Section 3.1) are to be provided the SN from the Project.
- Phone calls (PC) detailing relevant information made to identified/affected stakeholders within 172m. It is noted that the Project maintains continued communication with receivers along the project who are consulted extensively as part of the engagement program. No receivers fall within this distance from the proposed activity.
- Respite offer (RO) should be considered where there are high noise and vibration generating activities near receivers. RO proposes that works should be carried out in continuous blocks that do not exceed 3 hours each, with a minimum respite period of one hour between each block. The purpose of such offer is to provide residents with respite from an ongoing impact. RO Applies to high noise activities and vibration generation activities which are not being undertaken for this activity..
- Respite Period 1 (R1) shall be limited to no more than three consecutive evenings per week except where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and no more than 6 evenings per month. The works are proposed to be conducted over more than 3 nights per week under 2 week block. The R1 is not practical with the proposed activity, therefore Ertech are seeking to undertake the community Agreement process as specified below in DR.
- Respite Period 2 (R2) shall be limited to two consecutive nights except for where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and 6 nights per month. Where possible, high noise generating works shall be completed before 11pm. The works are proposed to be conducted over more than 2 consecutive nights and under a 2 week block. The R2 is not practical with the proposed activity, therefore Ertech are seeking to undertake the community Agreement process as specified below in DR.
- Duration Respite (DR) is offered when works are unable to comply with R1 and R2. Where it can be strongly justified it may be beneficial to increase the work duration (number of evenings or nights worked) so that the project can be completed more quickly. The proposed works are required for tie in activities and will include sequential nights at each location. R1 and R2 are not applied due to the nature of the proposed activity as detailed above as the works are to be undertaken over a 2 week block. The proposed works are planned to reduce the extended duration of road tie in works at each location with the approach being to undertake works at individual locations throughout the week reducing the impact period for the works to 2 week from the alternate schedule of 6 weeks where full respite R1 and R2 periods are implemented. A community

agreement process has been implemented to gain support from receivers within the impact areas (RBL +5dB)

- Alternate accommodation (AA) is not recommended during evening activities and no residential properties fall within the 118m distance for AA.

Relevant mitigation measures to the proposed scope as recommended by the noise assessment within the approved REF have been incorporated into the REF as safeguards and will be implemented on site. These are:

Reference	Mitigation Measure	How considered / Applied
NV1	<p>The site induction program will include a section for noise and vibration issues outlining measures such as:</p> <ul style="list-style-type: none"> • avoid use of radios during work outside normal hours • avoid shouting and slamming doors • operate machines at low speed or power and switching off when no being used rather than left idling for extended periods • minimise reversing • avoid dropping materials from height and • avoiding metal to metal contact of materials <p>consideration of works and equipment selection within close proximity of nearby structures</p>	<p>All site personnel are to be inducted prior to commencement of works</p>
NV2	<p>Advanced notification of work and potential disruptions would be provided where receivers are likely to experience annoyance due to construction works.</p> <p>The notification may consist of a letterbox drop (or equivalent) detailing work activities, time periods over which these would occur, impacts and mitigation measures. Notification distribution will be a minimum of five business days prior to the start of work.</p>	<p>Notifications of work activities has been issued to receivers as part of the monthly notification</p>
NV4	<p>Works would be carried out during standard working hours - any work performed outside normal work hours is to minimise noise impacts in accordance with RTA Enviro Noise Mgmt. Manual, Practice Note 7; and Interim Construction Noise Guidelines - this includes notifying local community of works planning to be undertaken outside construction hours</p>	<p>Proposed works OOH are included in this application for approval prior to commencement</p>
NV5	<p>Measures to minimise noise and vibration impacts during standard hours will include:</p> <ul style="list-style-type: none"> • limiting the amount of equipment on site operating simultaneously • using the lowest power equipment suitable for the job, where possible • restricting times when very noisy work is carried out, such as after 9am • orientating compound facilities to provide noise shielding or install noise screens/ barriers when these are in close proximity to noise-sensitive receivers or residential properties • consider acoustic screening, shrouds or enclosures around fixed plant, such as 	<p>Consideration of plant and equipment has been undertaken as part of this assessment.</p>

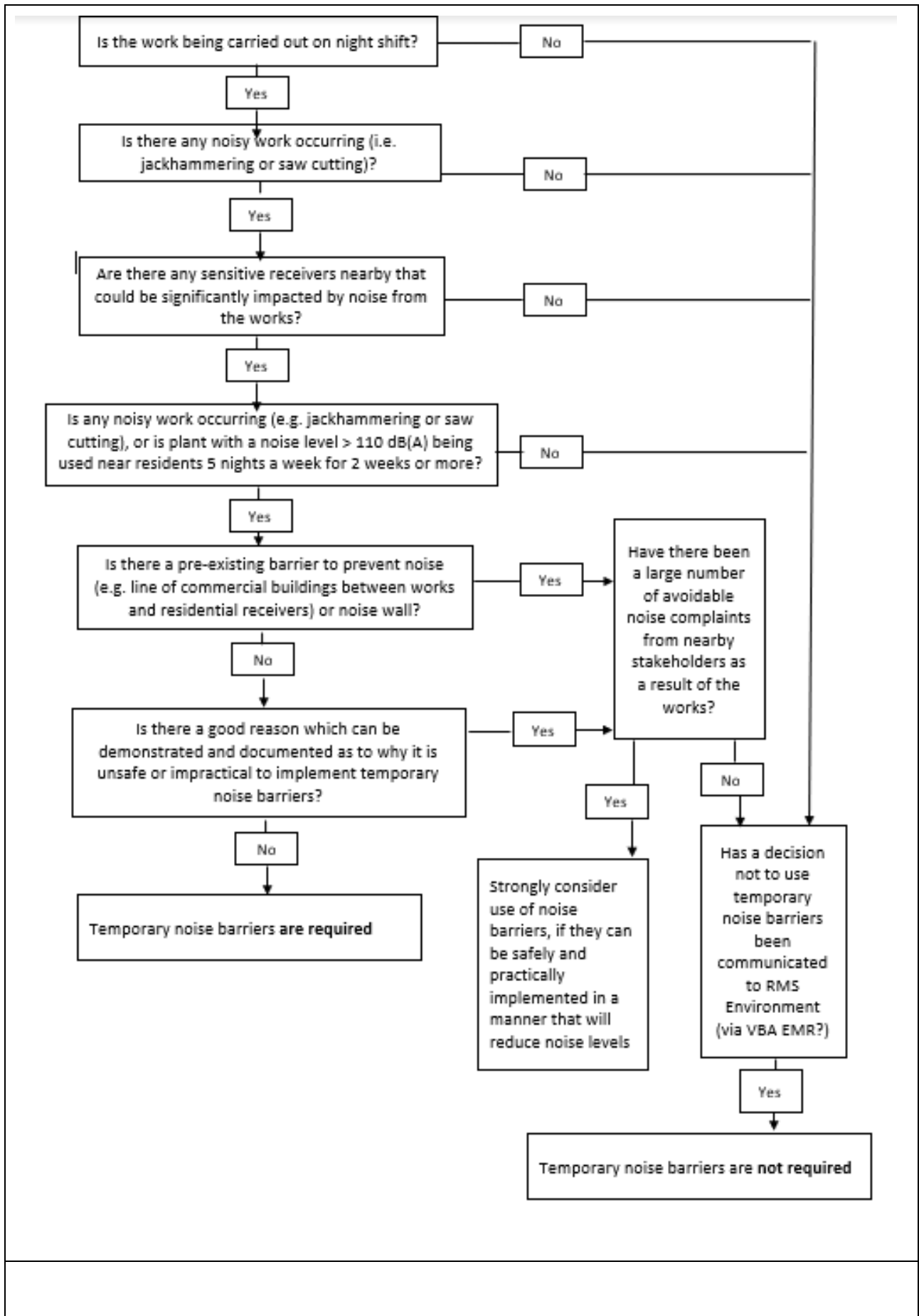
	<p>compressors / generators, under regular operation</p> <ul style="list-style-type: none"> consider using noise barriers/ curtains, screening or enclosures when very noisy plant or equipment, such as concrete piling rigs, are in use. 	
NV7	<p>Work may be undertaken outside of normal working hours without additional approval only during the following times:</p> <p>To facilitate oversized deliveries to site outside of road curfew restrictions</p> <p>To enable project staff to work within site compounds undertaking office based duties not audible at nearby receivers.</p> <p>Work during an emergency, where such work is necessary to avoid the loss of lives, property and/or prevent environmental harm.</p> <p>If any other out of hours work (OOHW) is proposed, an Out of Hours Assessment (OOHA) is to be prepared and approved by the Principal.</p>	Proposed works OOH are included in this application for approval prior to commencement
NV8	<p>An OOHA is to be prepared where physical works are proposed to be undertaken outside of standard working hours. This is to be submitted to TfNSW at least seven days prior to OOHW starting.</p> <p>Specific requirements to address in the OOHA are detailed in Section 7.2.2 of this NVMP.</p>	Proposed works OOH are included in this application for approval prior to commencement
NV9	<p>If OOHW is approved, affected residents will be notified by letter not less than 5 working days and not more than 10 working days before the changes begin.</p> <p>The letter must include details of the location, scope, nature and duration of the proposed changes and a contact number.</p>	Notifications to residents and receivers is to be undertaken for a 527m radius for the Project
NV10	High noise impact works will be undertaken before 12:00 am (midnight) where reasonable and feasible	Not applicable to proposed scope
NV11	<p>Respite periods would be used for highly disruptive noise and vibration generating activities conducted near residential receivers.</p> <p>The respite would be a minimum period of one hour between blocks of continuously noisy or vibration intensive work, which would be limited to three hours in duration.</p> <p>The actual duration of each block of work and respite would be flexible, to accommodate any agreements and requirements of impacted receivers.</p>	Not applicable to proposed scope due to nature of the works and application of Community Agreement
NV13	<p>All construction plant and equipment used on site must be, in addition to other requirements:</p> <ul style="list-style-type: none"> fitted with properly maintained noise suppression devices in accordance with the manufacturer's specifications maintained in an efficient condition operated in a proper and efficient manner to minimise noise and vibration 	All plant and equipment will be inspected as part of standard induction procedures.

	<ul style="list-style-type: none"> keep engine access covers closed turned off when not in use. 	
NV14	Where reasonably practicable, fit the least noise-intrusive reverse alarms to plant and vehicles, especially when they are to be operated in close proximity to sensitive noise receivers, eg 'quacker' type reversing alarms.	Tonal reverse alarms are not allowed on the Project
NV21	Switch off engines when equipment is not in use for extended periods.	Plant and equipment will be switched off when not in use
NV22	Avoid shouting, slamming doors and use of loud non-CB radios.	Behaviour requirements will be included as part of the OOH prestart
NV26	Noise and/ or vibration monitoring will be undertaken when required to assess performance against the construction noise and vibration criteria, particularly during any noisy or vibration intensive works. Noise and vibration monitoring requirements are detailed in Table 9-2 of this NVMP.	Verification noise monitoring will be undertaken during OOH works as detailed below.
NV27	If noise and/ or vibration monitoring indicates that mitigation measures are not fully effective, or if noise and/ or vibration complaints are received during construction, carry out attended noise and/or vibration monitoring, in consultation with TfNSW. Monitoring results are to be reported as part of the monthly report or site investigation/ incident report prepared following a complaint.	Results of verification monitoring will be recorded and works altered where required for compliance.
NV28	If construction noise objectives are still being exceeded after the implementation of all reasonable and feasible noise mitigation and management measures, the issue will be raised promptly with the Principal to determine the application of additional noise and/or vibration management strategies. Seek advice from a noise consultant, in consultation with TfNSW.	Works will cease where objectives cannot be achieved.

Additional mitigation measures include:

- A community agreement is being sought from potentially impacted receivers to allow the works to be undertaken over a 2-week intensive period rather than applying the respite mitigations. This would be aimed at reducing the impact period for the works to 2 weeks from the alternate schedule of 6 weeks where full respite R1 and R2 periods are implemented. A community agreement process has been implemented to gain support from receivers within the impact areas (RBL +5dB)
- For night works, the decision tree shown below was used to determine if noise blankets are to be used. Where works are in front of residents, are relatively static and at ground noise blankets would be used between the works and residents where safe to do so, and while maintaining minimum working distances from live traffic. (For example, chainsaw activity in trees cannot use noise blankets as the equipment used is elevated and mobile)
- Lighting towers required for the works will be directed away from residential dwellings
- All workers will be made aware of the above requirements during the site induction training and regular toolbox talks.

Decision tree for noise blankets to be used during proposed works



4.2 Consultation and notification strategy

Notification has been provided to all residents within 527m (refer to Attachment 1)

Notification includes details of work activities, dates and hours, impacts and mitigation measures and contact phone number. Notification will be sent out prior to the start of works.

Complaints will be managed in accordance with the Community Liaison Management Plan.

4.3 Noise monitoring

Noise monitoring will be undertaken in accordance with Section 8.3.1 of the NVMP.

Noise monitoring at nominated sensitive receiver locations to determine the effectiveness of mitigation measures against predicted impacts will be undertaken for the first night of commencement of the new activity for initial verification of compliance with predictions. The purpose of these measurements is to confirm that noise levels from construction in the adjacent residential receivers is consistent with the predictions in the noise assessment.

Monitoring would be undertaken in the vicinity of Mid Hartley Road and Baaners Lane and the Great Western Highway to represent the nearest receiver due to rural access restrictions.

Monitoring is to be undertaken on the first and second night activity at each location for verification of the predicted noise levels. It is expected that noise monitoring will be undertaken nightly from 30 March to 7 April to accommodate the first and second night at each location. Noise monitoring will be undertaken in the following noise periods:

1. Between 10pm and 12 midnight
2. Between 12 midnights and 2am
3. Between 2am and 6am

The results of the verification monitoring will be used to determine effectiveness of mitigation measures and to identify the requirements for additional measures (if required).

- Where actual noise levels are found to exceed the predicted worst-case levels, the source of excessive noise generations will be identified, and any additional feasible and reasonable measures available will be implemented to either reduce noise emissions or reduce the impacts on receivers.
- Works will cease on exceedance of predicted levels and reporting in accordance with the Project Noise and Vibration management plan will be undertaken.

Where complaints are received, additional noise monitoring will be undertaken at receivers to determine if the actual construction noise generated exceeds the predicted 'worst case' construction noise levels.

Details of site activity and equipment usage will be noted during construction noise monitoring.

Acoustic instrumentation employed in the noise monitoring surveys will comply with the requirements of AS1259.2-1990 Acoustics – Sound Level Meters, Part 2: Integrating – Averaging and carry appropriate NATA (or manufacturer) calibration certificates.

Proposed monitoring location is selected to be relevant to the work activities and will include the nearest affected residential receivers.

Attachments

OOH Notification

CNVG Assessment data