

RP2J Project OOHW application form

Out of hours work approval request form			
No:	Notification date:	Approval date:	Project:
020	26/07/2021		RP2J – Southern Utilities
A. Contact details	Name	Mobile number	Email
Contractor Environmental Site Representative	Richard Lipar	██████████	██████████
Contractor Project Manager	Mike Billington	██████████	██████████
Contractor Foreman	Daniel Tregeagle	██████████	██████████
Contractor Project Engineer	Ian Harris	██████████	██████████
B. Details of work:			
Include a map showing location of work extent and nearest sensitive receivers			
Location / chainages:	Lookout Road CH7660 to CH7760 (Median) and McCaffrey Drive CH400-CH460 (Shoulder)		
NCA/s:	NCA-13		
Description of works – also include a brief description of the sequence of activities:	<p><u>Underground Utilities Service Location</u></p> <p>OOHW Period 1 - Evening</p> <p>19:00 - Complete pre-start briefing with project team at compound</p> <p>19:30 - Set up traffic control and close 2 fast lanes</p> <p>20:15 - Mobilise equipment to work area</p> <p>20:30 – Commence saw cutting locations for service location</p> <p>OOHW Period 2 - Night</p> <p>21:30 – Remove Sawn material with excavator and place in truck</p> <p>22:30 – Non-Destructive Digging service locations</p> <p>02:30 – Reinstate locations with fill & install road plates/cold mix as required</p> <p>04:00 - Remove traffic control and reopen lanes to traffic.</p>		
Machinery/ plant to be used	2 x Light Vehicles (TC) Concrete Saw 13T Excavator NDD Vacuum Truck Small Tipper Truck <10T		
Traffic control measures required:	Lookout Road Northbound and Southbound Lane 2 (fast lanes)		
Lighting required:	Battery operated task lighting only. Street lights on site.		
Proposed dates:	2 Nights: Monday 09/08/2021 – Tuesday 10/08/21. From 1900 to 0500 each night finishing on the morning of the 11/08/21.		

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Proposed times:	Start 1900 – Finish 0500 each night
Justification – why does work need to occur outside of standard construction hours?: (attach support information as required)	Work needs to be carried out during the evening and night time periods for the safety of workers and public. This cannot happen during the day as TfNSW - Road Access Management (RAM) will not issue a Road Occupancy Licence (ROL) for daytime lane closures on Lookout Road for more than one carriageway at a time. Therefore works can not be completed on median safely.

C. Risk assessment

NML (refer Table 3-2 of OOHW protocol)	Evening: 54 dB(A). Night: 38 dB(A)
Is the work highly noise intensive? (above 75dB(A) L_{Aeq} (15 minute))	No
Risk factor category (refer section 4.3 of OOHW protocol):	OOHW Period 1 (Evening): Low Risk. RBL = 49 dB(A). Maximum worst case cumulative predicted noise level (L_{Aeq} 15 min.) = 65dB(A). ≤ 25 dB(A) above RBL. OOHW Period 2: Low Risk. RBL = 33 dB(A). Maximum worst case cumulative predicted noise level (L_{Aeq} 15 min.) = 58dB(A). ≤ 25 dB(A) over RBL.

D. Details of noise or vibration assessment completed:

Detailed noise assessments were completed using noise modelling program named *KNOWnoise: Minor Works* which is developed and owned by Hutchison Weller. This program, and it's more advanced version *KNOWnoise*, are used on many large-scale infrastructure projects to determine and model likely noise impacts on sensitive receivers.

As works are predicted to carry over the Evening and Night OOHW Periods, a detailed noise assessment was completed to determine predicted noise impacts for each period (refer Appendix A and Appendix B). Respective detailed noise assessment reports are attached to this OOHW Application. Reports include a map of predicted impacts on sensitive receivers, and predicted noise levels at each receiver's address.

All applicable data was added to the model, including but not limited to, specific information on the proposed activity, project adopted RBLs and NMLs, extent of works, plant and equipment to be used, proposed mitigation measures etc. Using this data, and data within the program, detailed noise assessment reports were produced giving accurate predicted noise impacts for the period assessed. Specific assessment methodology is described on Page 3 of each report.

Period 1 – Evening – Saw Cutting (Appendix A)

During OOHW Period 1, plant have been assessed as follows:

- 2 x Light Vehicles (TC)
- 1 x Concrete Saw

Predicted impacts:

As described in Table 4 of the *Noise Impact Assessment – Period 1 – Evening*, the predicted maximum worst case cumulative predicted noise level (L_{Aeq} , 15 min) is 65dB(A). This noise impact level is 16dB(A) above the RBL for the evening period (49dB(A)).

In accordance with Table 4-2 of the OOHW Protocol, this period of works is classified as 'low risk' as there are zero (0) residents expected to have impacts of >25 dB(A) above the RBL for the period.

As shown in Table 5 and Appendix A of the Assessment, there are nine (9) residents which have predicted impacts greater than the NML(54dB(A)), with predicted noise impacts ranging between 55dB(A) and 65dB(A).

From these residents;

- Six (6) have predicted impacts of <5 dB(A) above NML
- Three (3) have predicted impacts of 6-15 dB(A) above NML
- Zero (0) have predicted impacts of 16-25 dB(A) above NML
- Zero (0) have predicted impacts of >25 dB(A) above NML

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Period 2 – Night – NDD Vacuum Excavation (Appendix B)

During OOHW Period 2, plant have been assessed as follows:

- 1 x 13T excavator (SWL = 100dB(A))
- 1 x Tipper Truck (SWL = 94dB(A))
- 1 x NDD Vacuum Truck (SWL = 110dB(A)) – (Noise blankets on resident's side)

Predicted Noise impacts:

As described in Table 4 of the *Noise Impact Assessment – Period 2 – Night*, the predicted maximum worst case cumulative predicted noise level ($L_{Aeq, 15 \text{ min}}$) is 58dB(A). This noise impact level is 25dB(A) above the RBL for the Night period which is 33dB(A).

In accordance with Table 4-2 of the OOHW Protocol, this period of works is classified as 'low risk' as there are zero (0) residents with expected noise impacts >25dB(A) above the RBL for the period.

As shown in Table 5 and Appendix A of the Assessment, there are forty-one (41) residents which have predicted impacts greater than the NML, with predicted noise impacts ranging between 40dB(A) and 58dB(A).

As shown in Table 5, from these residents;

- Eighteen (18) have predicted impacts of <5 dB(A) above NML
- Twenty (20) have predicted impacts of 5-15 dB(A) above NML
- Three (3) have predicted impacts of 16-25 dB(A) above NML
- Zero (0) have predicted impacts of >25 dB(A) above NML

Predicted Vibration Impacts:

No vibration impacts are predicted as a result of these works. No plant or equipment will encroach within the minimum safe working distance (18m).

The activity is not considered to encroach into either "human comfort" or "structural damage" vibration criteria, based on distance, and equipment and methodology used (rubber tyred plant completing non-vibratory activities).

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E. Proposed mitigation measures, including respite

The following mitigation measures were proposed based on those identified in the *OOHW Protocol – Section 5.1* and *Table 5-1: Hierarchy for application of additional mitigation for airborne noise*.

Standard Mitigation Measures (OOHW Protocol):

- Modifying behavioural practices on site
- Equipment selection / maintaining and monitoring plant
- Use and siting of plant and hoardings (Noise Blankets will be installed on the residence sides of the Vacuum truck)
- Site inductions
- Use of non-tonal reversing alarms
- Stakeholder notification
- Planning noisier work to be carried out earlier in the period.

Additional Mitigation Measures (OOHW Protocol):

Residents 5-15 dB(A) above NML

- Notification
- Verification

Residents 15-25 dB(A) above NML

Individual briefing (Notification)

- Notification
- Individual briefing
- Verification
- Respite period 2 (2 nights work only).

NVMP Mitigation measures

- Where practical, operating machines at low speed / power and switching them off when not in use rather than leaving them idling for prolonged periods;
- Minimising the reversing of machines;
- All employees, contractors and subcontractors are to receive an environmental induction.
- No swearing or unnecessary shouting or loud stereos/radios on site.
- Limit compression braking at night in residential areas.
- No dropping of materials from height, throwing of metal items and slamming of doors.

F. Community consultation

Outline consultation undertaken for the proposed OOHW:

Consistent with the requirements of Table 5-1 of the OOH Protocol the receivers identified in *Table 5* and *Appendix A/C* of the Noise Assessments (Evening and Night) as having predicted impacts of:

- 5-15 dB(A) above NML have been notified by letter box drop and/or email. Approved and distributed notification letter provided in Appendix C.
- 15-25 dB(A) above NML have been individually briefed on the specific works and expected noise impacts. Record of individual briefings (door knock) provided in Appendix E.

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Has respite periods for OOHW been identified with the affected community on a monthly basis and a three-month schedule of likely OOHW provided (refer CoA E29)?

Yes, likely OOHW identified in 3 monthly look-ahead notification which covers likely OOHW in the first month of work. Notification letter was delivered to community on 06th July. (Appendix D).

Respite offers not required as no greater than 2 nights expected in the one area.

Has the outcome of community consultation, the identified respite periods and scheduling of likely OOHW been provided to the ER, EPA and Planning Secretary?

The scheduled of OOHW is provided to the ER, EPA and the Planning Secretary on a monthly basis. Transport for NSW also provides further detail on the community consultation and respite to the ER and Planning Secretary through the OOHW application process when relevant to OOHW, and when approval is sought. The EPA will be provided with relevant information through the six-monthly compliance reporting process by Transport.

G. Respite framework

Outline any previous respite within the last month and the status of community agreements (where relevant)?

N/A – first package of OOH work on the project.

Have cumulative impacts from OOHW permitted by an EPL been considered during the development appropriate respite?

N/A

H. Details of non-residential receivers (if any) and corresponding NMLs

Comments:


N/A

I. Are there any properties at risk of exceeding the screening criteria for cosmetic damage?




Comments:

No – No vibratory activities and all properties are >18m from works.

I. Review/ Endorsements

Contractor Community Liaison Representative	Community notified	Date: 04 August, 2021	
	The community have been notified by letter and/or email on Wednesday 04 August 2021. Residents identified as being moderately impacted were door knocked. See Appendix E.		
	Have the works been reviewed and endorsed?	Yes	
	Name:	Signature:	Date:
	Nikki Taylor		04/08/2021
Comments:			

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Transport for NSW Environmental Manager (or delegate)	Agreed mitigation measures:		
	Have the works been reviewed and endorsed?		Yes / No
	Have the works been approved where neither low or high risk?		Yes / No
	Name:	Signature:	Date:
	Andrew Grainger		5 August 2021
Comments:			
Transport for NSW Project Manager	Have the works been reviewed and endorsed?		Yes / No
	Have the works been approved where neither low or high risk?		Yes / No
	Name:	Signature:	Date:
	Anton Russek		05/08/2021
Comments:			
ER approval (low risk activities)	Are the works approved?		Yes
	Name:	Signature:	Date:
	Simon Williams		6 August 2021
	Comments:		
Planning Secretary approval (high risk activities)	Are the works approved?		Yes / No
	Name:	Signature:	Date:
	Comments:		

Appendix A - RP2J - Southern Utilities - OOH-01 Noise Impact Assessment - Period 1 - Evening

Construction noise impact assessment

Rankin Park to Jesmond Southern Utilities Relocation			
Proposed works	Service Location - Lookout Rd and McCaffrey Dr		
Proponent	Quickway		
Assessment Date	23/07/2021		
Prepared by	Tom St Vincent Welch	Assessment Id	2156

Introduction

This report has been prepared using the construction noise self-assessment platform KNOWnoise: *Minor Works* and presents an assessment of the likely noise impacts related to proposed works associated with the above project. Where possible, these works would be completed during standard construction hours; however, there may be a need to work outside these hours due to technical, community or access limitations. The location of the proposed works is illustrated in Appendix A.

Planned works

A description of the proposed works is as follows.

Location of underground services in median and footpath

Proposed activities and equipment for the works are summarised in Appendix B.

Though subject to change, the works are expected to commence around 09/08/2021 and would be completed by 11/08/2021.

Assessment criteria and mitigation requirements

The Interim Construction Noise Guideline (ICNG) (DECC 2009) describes noise more than the background level as potentially having an adverse impact on sensitive receivers and increasing the likelihood of complaint. During standard construction hours, where construction noise is within 10 dB(A) of the RBL, impacts would be acceptable.

Where construction noise is more than 10 dB(A) above the RBL during standard construction hours, a residential receiver is considered noise affected and the proponent should undertake all reasonable and feasible steps necessary to manage the impact and consult with the affected community.

Above a LAeq, 15 minute noise level of 75 dB(A), a receiver is highly affected, requiring consideration of additional mitigation measures including alternative accommodation in the night period.

Outside standard construction hours, construction noise at a residential receiver more than 5 dB(A) above the RBL is taken to be noise affected.

In addition, annoying noise such as rock hammers, impact piling, or other impulsive noise sources usually result in greater annoyance than continuous construction noise. A 5 dB(A) penalty is applicable to such activities prior to comparison with the NMLs.

Other sensitive land uses, such as schools and offices, typically find noise from construction disruptive when the properties are being used (such as during work and school times). Table 2 presents NMLs from the ICNG for sensitive land uses based on the principle that the characteristic activities for each of these land uses should not be unduly disturbed.

Construction noise impact statement

Table 1 Non-residential sensitive land uses noise management levels

Land use	Noise assessment location	NML (L _{Aeq,15min})
Classrooms at schools and other educational institutions	Internal	45
Places of worship		
Active recreation areas (such as sporting activities and activities which generate their own noise or focus for participants)	External	65
Passive recreation areas (contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External	60
Industrial premises	External	75
Office, retail outlets	External	70

As part of planning for out of hours works, standard mitigation measures, as described in the ICNG and CNVG, would be implemented where reasonable and feasible. However, after these measures have been applied, noise and vibration levels may continue to exceed the NMLs.

In this case, additional mitigation measures outlined in the CNVG, which largely focus on engagement with affected sensitive receivers, should be implemented where reasonable and feasible, unless other agreements are in place with the impacted receiver.

Triggers and additional mitigation measures for airborne noise are summarised in Table 2. Further details of specific additional mitigation measures are described in the CNVG.

Table 2 Triggers for additional mitigation measures – Airborne noise (Roads and Maritime 2016)

Predicted airborne LAeq(15min) noise level at receiver			
Perception	dB(A) above RBL	dB(A) above NML	Additional mitigation measures
All hours			
75 dB(A) or greater			N, V, PC, RO
Standard hours: Mon - Fri (7am – 6pm), Sat (8am – 1pm), Sun/Pub Hol (Nil)			
Noticeable	5 to 10	0	-
Clearly audible	10 to 20	< 10	-
Moderately intrusive	20 to 30	10 to 20	N, V
Highly intrusive	> 30	> 20	N, V
OOHW Period 1: Mon – Fri (6pm – 10pm), Sat (7am – 8am & 1pm – 10pm), Sun/Pub Hol (8am – 6pm)			
Noticeable	5 to 10	<5	-
Clearly audible	10 to 20	5 to 15	N, R1, DR
Moderately intrusive	20 to 30	15 to 25	V, N, R1, DR
Highly intrusive	> 30	>25	V, IB, N, R1, DR, PC, SN
OOHW Period 2: Mon – Fri (10pm – 7am), Sat (10pm – 8am), Sun/Pub Hol (6pm – 7am)			
Noticeable	5 to 10	<5	N
Clearly audible	10 to 20	5 to 15	V, N, R2, DR
Moderately intrusive	20 to 30	15 to 25	V, IB, N, PC, SN, R2, DR
Highly intrusive	> 30	>25	AA, V, IB, N, PC, SN, R2, DR

Notes:

PC = Phone calls

V = verification

IB = Individual briefings

N= Notification

AA = Alternative accommodation

SN = Specific notifications

RO = Respite offer

R1 = Respite period 1

R2 = Respite period 2

DR = Duration respite

Perception = relates to levels above RBL

NML = Noise management level

HA = Highly affected

Existing environment and noise management levels

The proposed works would be undertaken in a predominantly Suburban/ Urban, characterised as:

Areas with low density transportation.

Typically local traffic, light vehicles, intermittent traffic flow

Background noise levels adopted for the project area and associated noise management levels (NMLs) are summarised in Table 3. NMLs have been established in line with the ICNG.

Table 3 Construction NMLs

Land use	Suburban/ Urban		Using custom background noise data?		Yes
	Day	Weekend Day	Evening	Night	Sleep
RBL	56	56	49	33	
NML	66	61	54	38	48

Sleep disturbance

The ICNG recommends where construction works are planned to extend over more than two consecutive nights, the maximum noise level should be considered for the purposes of establishing the likelihood of sleep disturbance. The Road Noise Policy suggests that maximum internal noise levels below 50-55 dB(A) are unlikely to awaken people from sleep and one or two noise events per night, with maximum internal noise levels of 65-70 dB(A) are not likely to affect health and wellbeing significantly.

Based on this, a sleep awakening criterion of 55 dB(A) (internal) is typically adopted for works. Given that noise attenuation of 10 dB(A) is typically provided by an open window, a sleep awakening criterion of L_{Amax} 65 dB(A) (external) has been applied to residential bedroom façades. This is consistent with the sleep disturbance threshold described in Appendix E of the CNVG.

Assessment methodology

Based on the nominated works area (illustrated in Appendix A), proposed equipment and the minimum distance from the works to each sensitive receiver, noise levels were calculated based on CONCAWE (1981) *Propagation of noise from petroleum and petrochemical complexes to neighboring communities*.

This method considers geometric spreading, atmospheric absorption, ground effects and is valid for meteorological conditions of a gentle breeze from source to receiver and stable atmosphere (temperature inversion).

KNOWnoise: Minor works is a 2-Dimensional assessment platform and does not consider terrain effects (e.g. hills, valleys) or the presence of solid structures such as homes or noise barriers. This will result in a conservative prediction, suitable for the project being assessed.

Considering the nature of the works and the type of surrounding land uses, sensitive receivers up to a radius of 500 metres from the works have been included in the assessment.

Sound power levels and predicted noise levels depend on the number of plant items operating at any one time and their precise location relative to a sensitive receiver. Equipment was assumed to be working at the worst-case location relative to each receiver and represents a worst-case assessment. Where the activity is further away from receivers or less equipment is used the predicted levels will decrease.

Sound power levels for plant and equipment expected to be used for each activity has been estimated based on guidance in the following standards and guidelines as well as typical measured noise levels for specific equipment.

- “ Australian Standard AS2436-2010: Guide to noise and vibration control on construction, demolition and maintenance sites
- “ Construction Noise and Vibration Strategy 7TP-ST-157/2.0 (CNVS), (TfNSW, 2018)
- “ Construction Noise and Vibration Guideline (CNVG) (Roads and Maritime Services, 2016)
- “ British Standard 5228-1:2009 Code of practice for noise and vibration control on construction and open sites

Construction noise impact statement

“ United Kingdom Department for Environment, Food and Rural Affairs (DEFRA) Noise database for prediction of noise on construction and open sites

Construction noise sources and associated sound power levels are listed in Appendix B. The maximum predicted LAeq noise level within the work area was identified for each receiver.

Predicted noise levels

Detailed predicted noise levels for each potentially affected receiver are presented Appendix C.

A summary of predicted noise levels in comparison with ICNG assessment criteria for the Evening period is presented in Table 4.

Table 4 Summary of predicted noise levels with comparison against ICNG criteria for the Evening period.

Criterion	Predicted number of receivers
Maximum cumulative predicted L _{Aeq, 15 minute} noise level	65 dB(A)
Number of highly noise affected receivers (>75 dB)	0
1 – 10 dB above NML	8
10 – 20 dB above NML	1
20+ dB above NML	0

For works outside standard hours, up to 0 receivers are predicted to be classified as Highly Impacted during the Evening period. A summary of the number of receivers in each class is presented in Table 5.

Table 5 Summary of predicted noise levels with comparison against CNVG criteria

Impact class	Predicted noise level	Predicted number of receivers
Noticeable	1 – 5 dB above NML	6
Clearly audible	6 – 15 dB above NML	3
Moderately impacted	16 – 25 dB above NML	0
Highly Impacted	> 25 dB above NML	0

Predicted impact classes for the Evening period are illustrated graphically in Appendix C. Each identified receiver in the study area has been coloured to highlight the predicted level of impact.

Sleep disturbance

In the event works are planned for more than two consecutive nights, up to 0 are expected to exceed the sleep awakening criteria. Where any exceedances if the awakening criteria are predicted, additional care should be taken and mitigation measures implemented in the with the CNVG.

Proposed noise mitigation measures

The safeguards and controls listed in Table 6 will be implemented where reasonable and feasible with the intention of achieving the project noise criteria and to maintain noise impacts at a practical minimum.

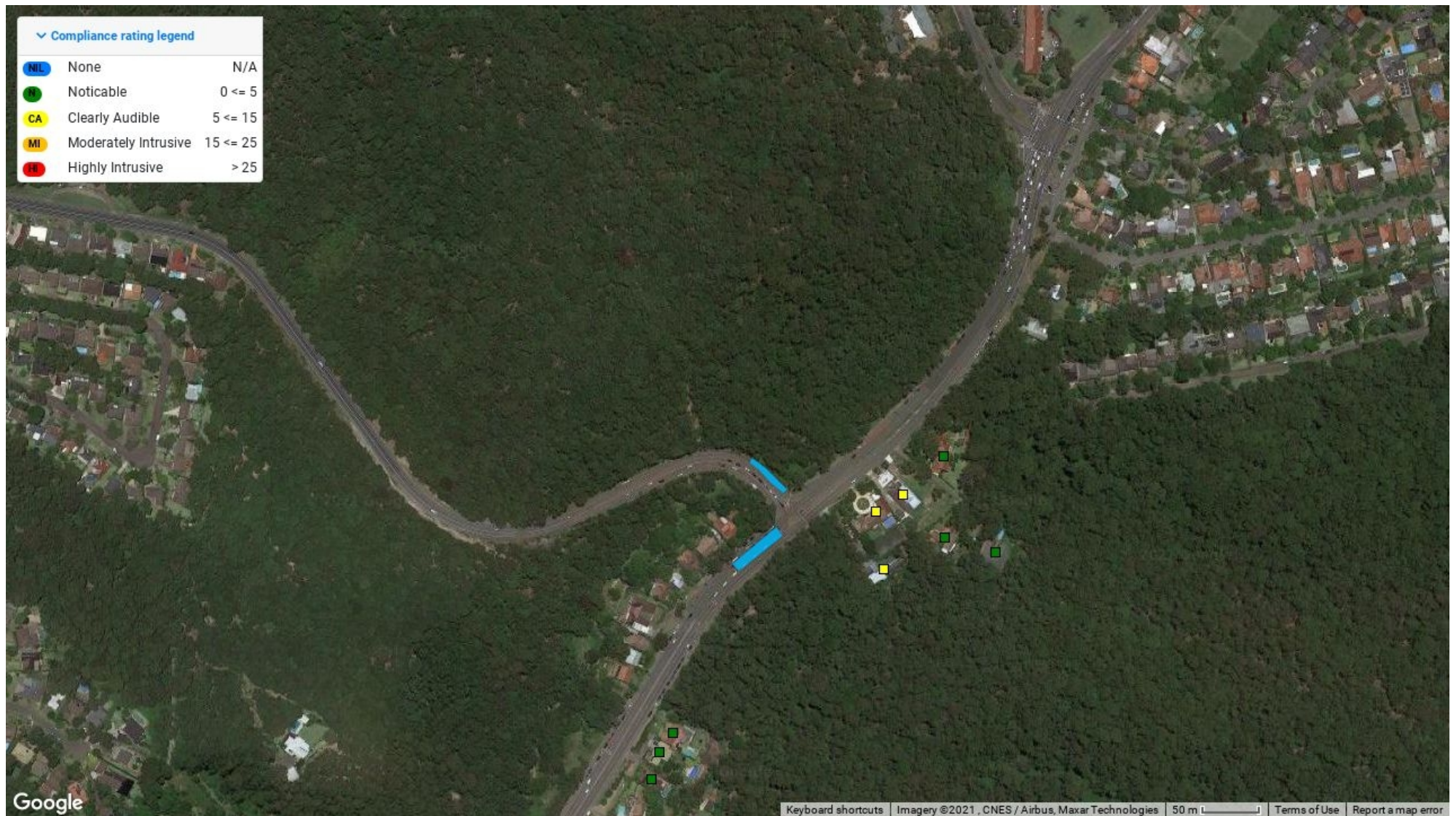
Table 6 Safeguards and controls

Action	Description
Community consultation or notification	<p>Notify the affected community.</p> <p>The notification will detail work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night time period, any operational noise benefits from the works (where applicable) and contact telephone number.</p> <p>Notification should be a minimum of 7 calendar days prior to the start of works. For projects other than maintenance works more advanced consultation or notification may be required.</p>
Site inductions	<p>All employees, contractors and subcontractors are to receive an environmental induction. The induction would at least include:</p> <ul style="list-style-type: none"> • all project specific and relevant standard noise and vibration mitigation measures • relevant licence and approval conditions • permissible hours of work • any limitations on high noise generating activities • location of nearest sensitive receivers • construction employee parking areas • designated loading/unloading areas and procedures <p>site opening/closing times (including deliveries) environmental incident procedures</p>
Behaviour	<p>No swearing or unnecessary shouting or loud stereos/radios on site.</p> <p>Limit compression braking at night in residential areas.</p> <p>No dropping of materials from height, throwing of metal items and slamming of doors.</p>
Verification	<p>Where indicated in Appendix C, a noise verification program would be undertaken for the duration of the works.</p>
Construction hours	<p>Where feasible and reasonable, construction should be carried out during the standard daytime working hours. Work generating high noise and/or vibration levels should be scheduled during less sensitive time periods.</p>
Respite for out-of-hours works	<p>Respite would be scheduled as indicated in Appendix C and described in the CNVG.</p>
Equipment selection	<p>Use quieter construction methods where feasible and reasonable.</p> <p>Ensure plant including the silencer is well maintained.</p> <p>Plant noise levels will have an operating noise emission level compliant with Appendix F of the CNVG</p>
Use and siting of plant	<p>The offset distance between noisy plant and adjacent sensitive receivers is to be maximised.</p> <p>Plant used intermittently to be throttled down or shut down.</p> <p>Noise-emitting plant to be directed away from sensitive receivers.</p>

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Action	Description
Plan worksites and activities to minimise noise and vibration.	<p>Locate compounds away from sensitive receivers and discourage access from local roads.</p> <p>Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site.</p> <p>Where additional activities or plant may only result in a marginal noise increase and speed up works, consider limiting duration of impact by concentrating noisy activities at one location and move to another as quickly as possible.</p> <p>Very noise activities should be scheduled for normal working hours. If the work can not be undertaken during the day, it should be completed before 11:00pm.</p> <p>Where practicable, work should be scheduled to avoid major student examination periods when students are studying for examinations such as before or during Higher School Certificate and at the end of higher education semesters.</p>
Non-tonal reverse alarms	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work.
Shield stationary noise sources such as pumps, generators, and compressors	These should be enclosed or shielded where reasonable and feasible.
Implement any project specific mitigation measures	
1	None

Appendix A Project location and predicted level of impact



Appendix B Proposed activities and equipment

Services location - Saw cutting pavement

Equipment	Quantity	Usage	Reduction	SWL
Light vehicle	2	20 %	0	81
Concrete Saw (Std)*	1	40 %	0	115

Activity Sound Power Level: 115

Appendix C Detailed noise predicted for each receiver and activity

Assessment: Service Location - Lookout Rd and McCaffrey Dr				Evening	Results summary		
NCA	ID	Address	Land use	NML	Cumulative Predicted LAeq, 15 minute noise level	Exceedance of NML, dB	Impact classification
	500195	117 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	54	58	4	Noticable
	500185	121B LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	54	55	1	Noticable
	500184	119 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	54	56	2	Noticable
	500152	79A LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	54	59	5	Noticable
	500151	79B LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	54	56	2	Noticable
	500150	85 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	54	63	9	Clearly Audible
	500148	79 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	54	59	5	Noticable
	500144	81 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	54	62	8	Clearly Audible
	500127	83 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	54	65	11	Clearly Audible

Appendix B - RP2J - Southern Utilities - OOH-01 Noise Impact Assessment - Period 2 – Night

Construction noise impact assessment

Rankin Park to Jesmond Southern Utilities Relocation			
Proposed works	Service Location - Lookout Rd and McCaffrey Dr		
Proponent	Quickway		
Assessment Date	23/07/2021		
Prepared by	Tom St Vincent Welch	Assessment Id	2156

Introduction

This report has been prepared using the construction noise self-assessment platform KNOWnoise: *Minor Works* and presents an assessment of the likely noise impacts related to proposed works associated with the above project. Where possible, these works would be completed during standard construction hours; however, there may be a need to work outside these hours due to technical, community or access limitations. The location of the proposed works is illustrated in Appendix A.

Planned works

A description of the proposed works is as follows.

Location of underground services in median and footpath

Proposed activities and equipment for the works are summarised in Appendix B.

Though subject to change, the works are expected to commence around 09/08/2021 and would be completed by 11/08/2021.

Assessment criteria and mitigation requirements

The Interim Construction Noise Guideline (ICNG) (DECC 2009) describes noise more than the background level as potentially having an adverse impact on sensitive receivers and increasing the likelihood of complaint. During standard construction hours, where construction noise is within 10 dB(A) of the RBL, impacts would be acceptable.

Where construction noise is more than 10 dB(A) above the RBL during standard construction hours, a residential receiver is considered noise affected and the proponent should undertake all reasonable and feasible steps necessary to manage the impact and consult with the affected community.

Above a LAeq, 15 minute noise level of 75 dB(A), a receiver is highly affected, requiring consideration of additional mitigation measures including alternative accommodation in the night period.

Outside standard construction hours, construction noise at a residential receiver more than 5 dB(A) above the RBL is taken to be noise affected.

In addition, annoying noise such as rock hammers, impact piling, or other impulsive noise sources usually result in greater annoyance than continuous construction noise. A 5 dB(A) penalty is applicable to such activities prior to comparison with the NMLs.

Other sensitive land uses, such as schools and offices, typically find noise from construction disruptive when the properties are being used (such as during work and school times). Table 2 presents NMLs from the ICNG for sensitive land uses based on the principle that the characteristic activities for each of these land uses should not be unduly disturbed.

Construction noise impact statement

Table 1 Non-residential sensitive land uses noise management levels

Land use	Noise assessment location	NML (L _{Aeq,15min})
Classrooms at schools and other educational institutions	Internal	45
Places of worship		
Active recreation areas (such as sporting activities and activities which generate their own noise or focus for participants)	External	65
Passive recreation areas (contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External	60
Industrial premises	External	75
Office, retail outlets	External	70

As part of planning for out of hours works, standard mitigation measures, as described in the ICNG and CNVG, would be implemented where reasonable and feasible. However, after these measures have been applied, noise and vibration levels may continue to exceed the NMLs.

In this case, additional mitigation measures outlined in the CNVG, which largely focus on engagement with affected sensitive receivers, should be implemented where reasonable and feasible, unless other agreements are in place with the impacted receiver.

Triggers and additional mitigation measures for airborne noise are summarised in Table 2. Further details of specific additional mitigation measures are described in the CNVG.

Table 2 Triggers for additional mitigation measures – Airborne noise (Roads and Maritime 2016)

Predicted airborne LAeq(15min) noise level at receiver			
Perception	dB(A) above RBL	dB(A) above NML	Additional mitigation measures
All hours			
75 dB(A) or greater			N, V, PC, RO
Standard hours: Mon - Fri (7am – 6pm), Sat (8am – 1pm), Sun/Pub Hol (Nil)			
Noticeable	5 to 10	0	-
Clearly audible	10 to 20	< 10	-
Moderately intrusive	20 to 30	10 to 20	N, V
Highly intrusive	> 30	> 20	N, V
OOHW Period 1: Mon – Fri (6pm – 10pm), Sat (7am – 8am & 1pm – 10pm), Sun/Pub Hol (8am – 6pm)			
Noticeable	5 to 10	<5	-
Clearly audible	10 to 20	5 to 15	N, R1, DR
Moderately intrusive	20 to 30	15 to 25	V, N, R1, DR
Highly intrusive	> 30	>25	V, IB, N, R1, DR, PC, SN
OOHW Period 2: Mon – Fri (10pm – 7am), Sat (10pm – 8am), Sun/Pub Hol (6pm – 7am)			
Noticeable	5 to 10	<5	N
Clearly audible	10 to 20	5 to 15	V, N, R2, DR
Moderately intrusive	20 to 30	15 to 25	V, IB, N, PC, SN, R2, DR
Highly intrusive	> 30	>25	AA, V, IB, N, PC, SN, R2, DR

Notes:

PC = Phone calls

V = verification

IB = Individual briefings

N= Notification

AA = Alternative accommodation

SN = Specific notifications

RO = Respite offer

R1 = Respite period 1

R2 = Respite period 2

DR = Duration respite

Perception = relates to levels above RBL

NML = Noise management level

HA = Highly affected

Existing environment and noise management levels

The proposed works would be undertaken in a predominantly Suburban/ Urban, characterised as:

Areas with low density transportation.

Typically local traffic, light vehicles, intermittent traffic flow

Background noise levels adopted for the project area and associated noise management levels (NMLs) are summarised in Table 3. NMLs have been established in line with the ICNG.

Table 3 Construction NMLs

Land use	Suburban/ Urban		Using custom background noise data?		Yes
	Day	Weekend Day	Evening	Night	Sleep
RBL	56	56	49	33	
NML	66	61	54	38	48

Sleep disturbance

The ICNG recommends where construction works are planned to extend over more than two consecutive nights, the maximum noise level should be considered for the purposes of establishing the likelihood of sleep disturbance. The Road Noise Policy suggests that maximum internal noise levels below 50-55 dB(A) are unlikely to awaken people from sleep and one or two noise events per night, with maximum internal noise levels of 65-70 dB(A) are not likely to affect health and wellbeing significantly.

Based on this, a sleep awakening criterion of 55 dB(A) (internal) is typically adopted for works. Given that noise attenuation of 10 dB(A) is typically provided by an open window, a sleep awakening criterion of L_{Amax} 65 dB(A) (external) has been applied to residential bedroom façades. This is consistent with the sleep disturbance threshold described in Appendix E of the CNVG.

Assessment methodology

Based on the nominated works area (illustrated in Appendix A), proposed equipment and the minimum distance from the works to each sensitive receiver, noise levels were calculated based on CONCAWE (1981) *Propagation of noise from petroleum and petrochemical complexes to neighboring communities*.

This method considers geometric spreading, atmospheric absorption, ground effects and is valid for meteorological conditions of a gentle breeze from source to receiver and stable atmosphere (temperature inversion).

KNOWnoise: Minor works is a 2-Dimensional assessment platform and does not consider terrain effects (e.g. hills, valleys) or the presence of solid structures such as homes or noise barriers. This will result in a conservative prediction, suitable for the project being assessed.

Considering the nature of the works and the type of surrounding land uses, sensitive receivers up to a radius of 500 metres from the works have been included in the assessment.

Sound power levels and predicted noise levels depend on the number of plant items operating at any one time and their precise location relative to a sensitive receiver. Equipment was assumed to be working at the worst-case location relative to each receiver and represents a worst-case assessment. Where the activity is further away from receivers or less equipment is used the predicted levels will decrease.

Sound power levels for plant and equipment expected to be used for each activity has been estimated based on guidance in the following standards and guidelines as well as typical measured noise levels for specific equipment.

- “ Australian Standard AS2436-2010: Guide to noise and vibration control on construction, demolition and maintenance sites
- “ Construction Noise and Vibration Strategy 7TP-ST-157/2.0 (CNVS), (TfNSW, 2018)
- “ Construction Noise and Vibration Guideline (CNVG) (Roads and Maritime Services, 2016)
- “ British Standard 5228-1:2009 Code of practice for noise and vibration control on construction and open sites

Construction noise impact statement

“ United Kingdom Department for Environment, Food and Rural Affairs (DEFRA) Noise database for prediction of noise on construction and open sites

Construction noise sources and associated sound power levels are listed in Appendix B. The maximum predicted LAeq noise level within the work area was identified for each receiver.

Predicted noise levels

Detailed predicted noise levels for each potentially affected receiver are presented Appendix C.

A summary of predicted noise levels in comparison with ICNG assessment criteria for the Night period is presented in Table 4.

Table 4 Summary of predicted noise levels with comparison against ICNG criteria for the Night period.

Criterion	Predicted number of receivers
Maximum cumulative predicted L _{Aeq, 15 minute} noise level	58 dB(A)
Number of highly noise affected receivers (>75 dB)	0
1 – 10 dB above NML	32
10 – 20 dB above NML	8
20+ dB above NML	1

For works outside standard hours, up to 0 receivers are predicted to be classified as Highly Impacted during the Night period. A summary of the number of receivers in each class is presented in Table 5.

Table 5 Summary of predicted noise levels with comparison against CNVG criteria

Impact class	Predicted noise level	Predicted number of receivers
Noticeable	1 – 5 dB above NML	18
Clearly audible	6 – 15 dB above NML	20
Moderately impacted	16 – 25 dB above NML	3
Highly Impacted	> 25 dB above NML	0

Predicted impact classes for the Night period are illustrated graphically in Appendix C. Each identified receiver in the study area has been coloured to highlight the predicted level of impact.

Sleep disturbance

In the event works are planned for more than two consecutive nights, up to 0 are expected to exceed the sleep awakening criteria. Where any exceedances if the awakening criteria are predicted, additional care should be taken and mitigation measures implemented in the with the CNVG.

Proposed noise mitigation measures

The safeguards and controls listed in Table 6 will be implemented where reasonable and feasible with the intention of achieving the project noise criteria and to maintain noise impacts at a practical minimum.

Table 6 Safeguards and controls

Action	Description
Community consultation or notification	<p>Notify the affected community.</p> <p>The notification will detail work activities, dates and hours, impacts and mitigation measures, indication of work schedule over the night time period, any operational noise benefits from the works (where applicable) and contact telephone number.</p> <p>Notification should be a minimum of 7 calendar days prior to the start of works. For projects other than maintenance works more advanced consultation or notification may be required.</p>
Site inductions	<p>All employees, contractors and subcontractors are to receive an environmental induction. The induction would at least include:</p> <ul style="list-style-type: none"> • all project specific and relevant standard noise and vibration mitigation measures • relevant licence and approval conditions • permissible hours of work • any limitations on high noise generating activities • location of nearest sensitive receivers • construction employee parking areas • designated loading/unloading areas and procedures <p>site opening/closing times (including deliveries) environmental incident procedures</p>
Behaviour	<p>No swearing or unnecessary shouting or loud stereos/radios on site.</p> <p>Limit compression braking at night in residential areas.</p> <p>No dropping of materials from height, throwing of metal items and slamming of doors.</p>
Verification	<p>Where indicated in Appendix C, a noise verification program would be undertaken for the duration of the works.</p>
Construction hours	<p>Where feasible and reasonable, construction should be carried out during the standard daytime working hours. Work generating high noise and/or vibration levels should be scheduled during less sensitive time periods.</p>
Respite for out-of-hours works	<p>Respite would be scheduled as indicated in Appendix C and described in the CNVG.</p>
Equipment selection	<p>Use quieter construction methods where feasible and reasonable.</p> <p>Ensure plant including the silencer is well maintained.</p> <p>Plant noise levels will have an operating noise emission level compliant with Appendix F of the CNVG</p>
Use and siting of plant	<p>The offset distance between noisy plant and adjacent sensitive receivers is to be maximised.</p> <p>Plant used intermittently to be throttled down or shut down.</p> <p>Noise-emitting plant to be directed away from sensitive receivers.</p>

Construction noise impact statement

Action	Description
Plan worksites and activities to minimise noise and vibration.	<p>Locate compounds away from sensitive receivers and discourage access from local roads.</p> <p>Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site.</p> <p>Where additional activities or plant may only result in a marginal noise increase and speed up works, consider limiting duration of impact by concentrating noisy activities at one location and move to another as quickly as possible.</p> <p>Very noise activities should be scheduled for normal working hours. If the work can not be undertaken during the day, it should be completed before 11:00pm.</p> <p>Where practicable, work should be scheduled to avoid major student examination periods when students are studying for examinations such as before or during Higher School Certificate and at the end of higher education semesters.</p>
Non-tonal reverse alarms	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work.
Shield stationary noise sources such as pumps, generators, and compressors	These should be enclosed or shielded where reasonable and feasible.
Implement any project specific mitigation measures	
1	None

Appendix A Project location and predicted level of impact



Appendix B Proposed activities and equipment

Services location - NDD

Equipment	Quantity	Usage	Reduction	SWL
Excavator (12 tonne)	1	20 %	0	97
Tipper Truck	1	40 %	0	94
Vacc truck	1	60 %	2	108

Activity Sound Power Level: 108

Appendix C Detailed noise predicted for each receiver and activity

Assessment: Service Location - Lookout Rd and McCaffrey Dr				Night	Results summary		
NCA	ID	Address	Land use	NML	Cumulative Predicted LAeq, 15 minute noise level	Exceedance of NML, dB	Impact classification
	500195	117 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	51	13	Clearly Audible
	500194	121C LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	47	9	Clearly Audible
	500189	136 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	43	5	Noticable
	500188	138 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	43	5	Noticable
	500187	121A LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	47	9	Clearly Audible
	500185	121B LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	48	10	Clearly Audible
	500184	119 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	50	12	Clearly Audible
	500178	1 BUSHLANDS CLOSE NEW LAMBTON HEIGHTS	NONE	38	42	4	Noticable
	500169	6 RIDGEWAY ROAD NEW LAMBTON HEIGHTS	RES	38	43	5	Noticable
	500167	38 FLORALIA CLOSE NEW LAMBTON HEIGHTS	RES	38	46	8	Clearly Audible
	500166	34 FLORALIA CLOSE NEW LAMBTON HEIGHTS	RES	38	45	7	Clearly Audible
	500164	10 RIDGEWAY ROAD NEW LAMBTON HEIGHTS	RES	38	42	4	Noticable
	500159	30 FLORALIA CLOSE NEW LAMBTON HEIGHTS	RES	38	44	6	Clearly Audible
	500158	5 BUSHLANDS CLOSE NEW LAMBTON HEIGHTS	RES	38	42	4	Noticable
	500157	12 RIDGEWAY ROAD NEW LAMBTON HEIGHTS	RES	38	42	4	Noticable
	500156	5 RIDGEWAY ROAD NEW LAMBTON HEIGHTS	RES	38	43	5	Noticable
	500155	32 FLORALIA CLOSE NEW LAMBTON HEIGHTS	RES	38	44	6	Clearly Audible
	500154	4 RIDGEWAY ROAD NEW LAMBTON HEIGHTS	RES	38	43	5	Clearly Audible
	500153	53 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	41	3	Noticable
	500152	79A LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	52	14	Clearly Audible
	500151	79B LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	49	11	Clearly Audible
	500150	85 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	56	18	Moderately Intrusive
	500149	51 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	41	3	Noticable
	500148	79 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	52	14	Clearly Audible
	500146	3 RIDGEWAY ROAD NEW LAMBTON HEIGHTS	RES	38	43	5	Clearly Audible
	500145	36 FLORALIA CLOSE NEW LAMBTON HEIGHTS	RES	38	45	7	Clearly Audible
	500144	81 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	56	18	Moderately Intrusive
	500143	2 RIDGEWAY ROAD NEW LAMBTON HEIGHTS	RES	38	43	5	Clearly Audible
	500142	1 RIDGEWAY ROAD NEW LAMBTON HEIGHTS	RES	38	44	6	Clearly Audible
	500141	4 BUSHLANDS CLOSE NEW LAMBTON HEIGHTS	RES	38	41	3	Noticable
	500140	45B LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	40	2	Noticable
	500139	61 LOOKOUT ROAD NEW LAMBTON HEIGHTS	NONE	38	43	5	Clearly Audible
	500138	3 BUSHLANDS CLOSE NEW LAMBTON HEIGHTS	RES	38	42	4	Noticable
	500135	2 BUSHLANDS CLOSE NEW LAMBTON HEIGHTS	RES	38	41	3	Noticable
	500134	59 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	43	5	Noticable
	500132	UNIT 1/ 7 RIDGEWAY ROAD NEW LAMBTON HEIGHTS	RES	38	42	4	Noticable
	500131	28 FLORALIA CLOSE NEW LAMBTON HEIGHTS	RES	38	43	5	Clearly Audible
	500130	49 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	41	3	Noticable

Appendix C Detailed noise predicted for each receiver and activity

Assessment: Service Location - Lookout Rd and McCaffrey Dr				Night	Results summary		
NCA	ID	Address	Land use	NML	Cumulative Predicted LAeq, 15 minute noise level	Exceedance of NML, dB	Impact classification
	500129	1A RIDGEWAY ROAD NEW LAMBTON HEIGHTS	RES	38	44	6	Clearly Audible
	500128	8 RIDGEWAY ROAD NEW LAMBTON HEIGHTS	RES	38	43	5	Noticable
	500127	83 LOOKOUT ROAD NEW LAMBTON HEIGHTS	RES	38	58	20	Moderately Intrusive

Appendix C – Notification letter



August 2021

Dear resident

**Re: Newcastle Inner City Bypass – Rankin Park to Jesmond Project
Out of hours work**

Transport for NSW recently awarded a contract to Quickway to relocate major utilities at the southern end of the Rankin Park to Jesmond project to help prepare for the main construction of the bypass. This stage of early work started in **late July 2021** and is expected to be completed by **June 2022**, weather permitting.

Some work is required outside normal project hours for the safety of workers and road users, and to minimise traffic delays.

We plan to carry out out of hours work on **Lookout Road, New Lambton Heights** on **Monday 9 August** and **Tuesday 10 August** between **7pm** and **5am**.

The work will include setting up traffic control, mobilising equipment, concrete removal, non-destructive digging, and excavating.

We will make every effort to minimise these impacts. Noise levels will vary between moderate to noisy.

If you would like to provide feedback, have any questions about this work or would like to provide your contact details for future notices, please contact Nikki Taylor, Community Relations Manager, Quickway on 1800 818 433 or email at nikit@quickway.com.au or alternatively email southern.utilities.RP2J@quickway.com.au.

Yours sincerely

Brett Kendall
Transport for NSW – Project Manager
Newcastle Inner City Bypass – Rankin Park to Jesmond

Appendix D – 3 Month Look Ahead Notification

Out of hours early work at New Lambton Heights from July to November 2021

The NSW Government is funding early work for the Newcastle Inner City Bypass between Rankin Park and Jesmond.

Transport for NSW recently awarded a contract to Quickway to relocate major utilities at the southern end of the Rankin Park to Jesmond project to help prepare for the main construction of the bypass. This early work is due to start in late July.

We will be carrying out essential night work on Lookout Road and surrounding areas. Work is required outside normal project hours for the safety of workers and road users, and to minimise traffic delays.

To reduce disruptions, work will be limited to two nights per week at the same location. Work hours will be **7pm** and **6am** between **Monday** and **Friday**, weather permitting. High impact noisy work will be done **before 11pm**. If wet weather prevents the work occurring as planned it will be rescheduled and you will be notified.

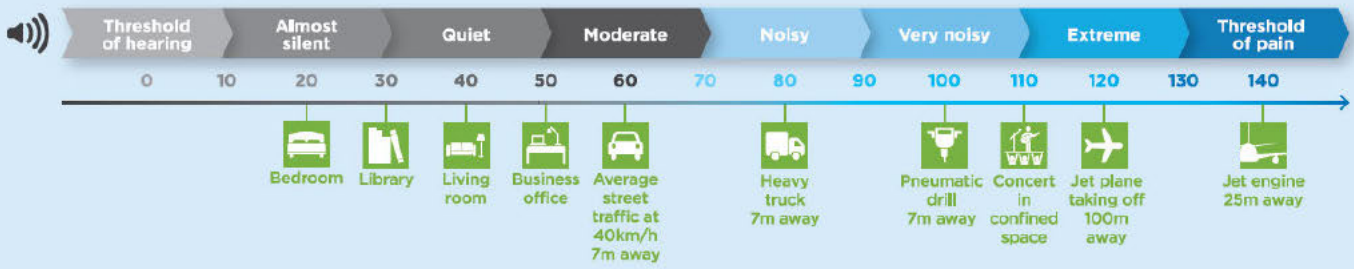
Date	Work Activity	Equipment
Late July	Installing temporary traffic barriers and locating utility services on Lookout Road Expected Duration - One Week	Traffic control, mobile crane, trucks, excavator, sucker truck, lighting towers
Early August	Tree clearing and site access works for watermain underbore on corner of McCaffery Drive and Lookout Road Expected Duration - One Week	Traffic control, trucks, excavators, elevated working platform, chain saw, lighting towers
Mid August	Installing overhead power poles on Lookout Road Expected Duration - One Week	Traffic control, crane borer, trucks, excavator, sucker truck, elevated working platform, lighting towers
Late August	Overhead powerline cut-overs to new poles on Lookout Road & McCaffery Drive Expected Duration - Two Weeks	Traffic control, trucks, excavator, elevated working platforms, lighting towers
September	Trenched utility crossings across Lookout Road and Grandview Drive Expected Duration - Two Weeks	Traffic control, excavator, trucks, sucker trucks, lighting towers, compaction rollers, road saw, asphalt, mobile crane, excavator with rock hammer.
November	Median island removal and pavement infill on Lookout Road Expected Duration - Three Weeks	Traffic control, excavators, trucks, lighting towers, compaction rollers, road saw, asphalt profiler, asphalt paver, concrete agitator trucks.

How will the work affect you?

The work will involve the use of machinery which generates noise, light and vibration. We will make every effort to minimise these impacts by using noise blankets, turning off vehicles when not in use and replacing the reserving signals on vehicles with clickers.

Noise levels will vary between moderate to very noisy, the diagram on the next page provides a guide to the noise you can expect. Directly affected residents will be contacted and advised of the likely impact and what we are doing to minimise disruption during the work.

Sound levels in decibels (approximate)



Traffic changes

There will be some temporary traffic changes to ensure the work zone is safe including a 60km/h speed limit along Lookout Road between McCaffrey Drive and Grandview Road. A 40km/h speed limit will apply during temporary lane closures. Travel times will be affected.

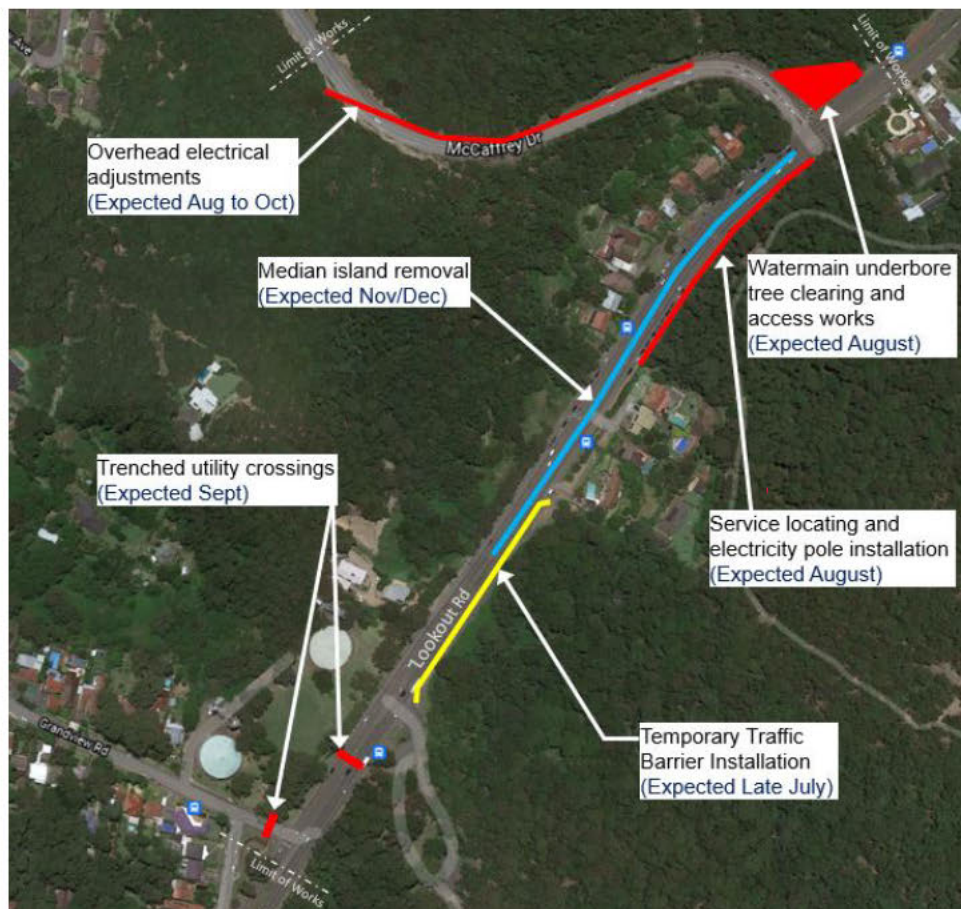
Please keep to speed limits and follow the direction of traffic controllers and signs. For the latest traffic updates, you can call 132 701, visit livetraffic.com or download the Live Traffic NSW App.

Contact

If you would like to provide feedback, or have any questions about this work, please contact our project team on 1800 818 433 (24 hours) or email southern.utilities.RP2J@quickway.com.au

For more information about the Newcastle Inner City Bypass between Rankin Park and Jesmond, visit nswroads.work/rp2j. Thank you for your patience during this important work.

Location of work



131 450

If you need help understanding this information, please contact the Translating and Interpreting Service on 131 450 and ask them to call us on 1800 818 433.

Appendix E – Record of consultation of relevant affected receivers

Table 1: OOHW Consultation Record

Address	NCA	Land Use	Work Location	Work Period	NML (RBL +5 dB(A))	Predicted Noise Level at receiver	Exceedance of NML	Exceedance of RBL	OOH Protocol Risk Rating (high/low)	Impact Classification	Mitigation Measures (PC, V, IB, N, AA, SN,	Date Notification completed / sent	Notification type (SMS Email / Phone Call / Notification Letter /	Written Agreement to all OoHW	Follow up contact with resident?
117 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	51	13	18	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
121C Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	47	9	14	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
136 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	43	5	10	Low	Noticeable	N	04/082021	Notification Letter and direct email	■	
138 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	43	5	10	Low	Noticeable	N	04/082021	Notification Letter and direct email	■	
121A Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	47	9	14	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
121B Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	48	10	15	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
119 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	50	12	17	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
45B Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	40	2	7	Low	Noticeable	N	04/082021	Notification Letter	■	
49 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	41	3	8	Low	Noticeable	N	04/082021	Notification Letter	■	
51 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	41	3	8	Low	Noticeable	N	04/082021	Notification Letter	■	
59 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	43	5	10	Low	Noticeable	N	04/082021	Notification Letter	■	
61 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	43	5	10	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
79 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	52	14	19	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
79A Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	52	14	19	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
79B Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	49	11	16	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
81 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	56	18	23	Low	Moderately Intrusive	V, IB, N	04/082021	Door Knock, Notification Letter and direct email	■	
85 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	56	18	23	Low	Moderately Intrusive	V, IB, N	04/082021	Door Knock, Notification Letter and direct email	■	
1 Bushlands Close, new Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	42	4	9	Low	Noticeable	N	04/082021	Notification Letter	■	
2 Bushlands Close, new Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	41	3	8	Low	Noticeable	N	04/082021	Notification Letter	■	
3 Bushlands Close, new Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	42	4	9	Low	Noticeable	N	04/082021	Notification Letter	■	
4 Bushlands Close, new Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	41	3	8	Low	Noticeable	N	04/082021	Notification Letter	■	

5 Bushlands Close, new Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	42	4	9	Low	Noticeable	N	04/082021	Notification Letter	■	
1 Ridgeway Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	44	6	11	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
1A Ridgeway Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	44	6	11	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
2 Ridgeway Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	43	5	10	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
3 Ridgeway Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	43	5	10	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
4 Ridgeway Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	43	5	10	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
5 Ridgeway Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	43	5	10	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
6 Ridgeway Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	43	5	10	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
1/7 Ridgeway Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	42	4	9	Low	Noticeable	N	04/082021	Notification Letter	■	
8 Ridgeway Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	43	5	10	Low	Noticeable	N	04/082021	Notification Letter	■	
10 Ridgeway Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	42	4	9	Low	Noticeable	N	04/082021	Notification Letter	■	
12 Ridgeway Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	42	4	9	Low	Noticeable	N	04/082021	Notification Letter	■	
28 Floralia Close, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	43	5	10	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
30 Floralia Close, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	44	6	11	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
32 Floralia Close, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	44	6	11	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
34 Floralia Close, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	45	7	12	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
36 Floralia Close, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	45	7	12	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	
38 Floralia Close, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	46	8	13	Low	Clearly Audible	N, V	04/082021	Notification Letter and direct email	■	

Table 1: OOHW Consultation Record

Address	NCA	Land Use	Work Location	Work Period	NML (RBL +5 dB(A))	Predicted Noise Level at receiver	Exceedance of NML	Exceedance of RBL	OOH Protocol Risk Rating (high/low)	Impact Classification	Mitigation Measures (PC, V, IB, N, AA, SN, RO, R1, R2, DR)	Date Notification completed / sent	Notification type (SMS / Email / Phone Call / Notification Letter / Door knock)	Written Agreement to all OoHW	Follow up contact with resident?
53 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	41	3	8	Low	Noticeable	N	4/08/2021	Notification Letter	██████	
83 Lookout Road, New Lambton Heights, NSW	NCA-13	Residential	Lookout Road, Southbound Lane 1	Night	38	58	20	25	Low	Moderately Intrusive	V, IB, N	04/0/2021	Notification Letter and direct email	██████	