

# RP2J Project OOHW application form

| Out of hours work approval request form  |  |                |                           |
|--|--|----------------|---------------------------|
| No:  | Notification date:   | Approval date: | Project:                  |
| 021  | 06/08/2021   |                | RP2J – Southern Utilities |
| A. Contact details   | Name   | Mobile number  | Email                     |
| Contractor Environmental Site Representative   | Richard Lipar  | ██████████     | ██████████                |
| Contractor Project Manager   | Mike Billington  | ██████████     | ██████████                |
| Contractor Foreman   | Daniel Treggeagle  | ██████████     | ██████████                |
| 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 Median (refer to Appendix for location Map)   |                |                           |
| NCA/s:   | NCA-13   |                |                           |
| Description of works – also include a brief description of the sequence of activities: | <p><b><u>Installation of long term temporary traffic signs along Lookout Road median as follows:</u></b></p> <ul style="list-style-type: none"> <li>- Two new signs at the Cardiff Rd end of the Project. Posts installed by hand digging in grass median.</li> <li>- Two existing signs in vicinity of McCaffery Drive to be unbolted and removed using hand tools.</li> <li>- Three new signs in vicinity of Kookaburra Cct Intersection:               <ul style="list-style-type: none"> <li>o Two posts with base plates drilled and fixed into concrete median using battery drill and chemical anchors</li> <li>o One installed on an existing sign post</li> </ul> </li> </ul> <p><b>OOHW Period 1 – Evening</b><br/>           19:00 - Complete pre-start briefing with project team at compound<br/>           19:30 - Set up traffic control and close northbound and southbound fast lanes<br/>           20:15 - Mobilise equipment to the southern work area and using hand excavation install the new signs</p> <p><b>OOHW Period 2 - Night</b><br/>           21:30 – Relocate to northern zone and complete remain sign installs.<br/>           04:00 - Remove traffic control and reopen lanes to traffic</p> |                |                           |
| Machinery/ plant to be used  | 2 x Light Vehicles (Traffic Control)<br>Light Vehicle<br>Hand tools, battery drill   |                |                           |
| Traffic control measures required:   | Lookout Road Northbound and Southbound Lane 2 Closures<br>Kookaburra Cct right hand turn lane closure  |                |                           |
| Lighting required:   | Battery operated task lighting only. Street lights on site   |                |                           |

## Out of hours work approval request form

|  |   |
|--|---|
| Proposed dates:  | 1 night: Monday 16/08/2021 – 17/08/21. From 1900 to 0500  |
| Proposed times:  | Start 1900 – Finish 0500  |
| Justification – why does work need to occur outside of standard construction hours?:<br>(attach support information as required) | Work needs to be carried out under lane closure of Lookout Road for the safety of workers whilst in the median. 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 in both directions. |

### 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?<br>(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.) = 50dB(A). $\leq 25$ dB(A) above RBL.<br>OOHW Period 2: Low Risk. RBL = 33 dB(A). Maximum worst case cumulative predicted noise level ( $L_{Aeq}$ 15 min.) = 41dB(A). |

### 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 – Signage Installation (Appendix A)**

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

- 2 x Light Vehicles (TC)
- 1 x Light Vehicle

#### **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 50dB(A). This noise impact level is less than 25dB(A). It's only 4dB(A) above the RBL for the evening period which is 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 >25dB(A) above the RBL for the period.

As shown in Table 5 and Appendix A of the Assessment, there are zero (0) residents which have predicted impacts greater than the NML(54dB(A)), with predicted noise impacts to be 50dB(A).

From these residents:

- Zero (0) have predicted impacts of 5-15 dB(A) above NML

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### **Period 2 – Night – Signage Installation (Appendix B)**

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

- 2 x Light Vehicles (TC)
- 1 x Light Vehicle

#### **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 41dB(A). This noise impact level is 8dB(A) above the RBL for the Night period under a worst-case scenario, which is 33dB(A).

In accordance with Table 4-2 of the OOHW Protocol, this works is initially 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, within the 600m assessment area there are 5 residents which have predicted impacts greater than the NML and 1 equal, with predicted noise impacts ranging between 0dB(A) and 3dB(A) above the NML of 50dB(A).

As shown in Table 5, from these residents five (5) have predicted impacts of 1-5 dB(A) above NML and one (1) is equal.

#### **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).

### **E. Proposed mitigation measures, including respite**

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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
- 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):**

- Based on assessment (1-5 dB(A) above NML) only standard and NVMP mitigation measures are required.

### **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:*

The properties identified in Appendix A and C of the OOH-01 Noise Impact Assessment – Period 2 – Night, will be provided a written notification describing the upcoming OOH works and likely impacts. Refer to Appendix D for approved notification letter to be delivered no more than 5 days prior to undertaking the works.

### *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. Notification was delivered to community on 06<sup>th</sup> July.

Respite offers not required as only a single night's work with one week gap between previous night works on 9<sup>th</sup> and 10<sup>th</sup> August.

### *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

## Out of hours work approval request form

Outline any previous respite within the last month and the status of community agreements (where relevant)?  
Previous OOHW scheduled on 9<sup>th</sup> and 10<sup>th</sup> August providing 1 week respite before this activity.

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:

Using the current noise assessment software it is noted that noise at the nearby sensitive receiver of John Hunter Hospital will not exceed the NML of 38db(A) during the planned works.

### 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 to be notified via letter

Date: 9 Aug 2021

The community will be notified no later than 5 days prior to start of work via letter

Have the works been reviewed and endorsed?

Yes

Name:

Signature:

Date:

Nikki Taylor

05/08/21

Comments:

**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

9/08/2021

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:

Brett Kendall

9/08/2021

**Out of hours work approval request form**

|   |                         |   |          |
|---|-------------------------|---|----------|
|   | Comments:               |   |          |
| <b>ER approval (low risk activities)</b>                  | Are the works approved? |   | Yes / No |
|   | Name:                   | Signature:  | Date:    |
|   |                         |  |          |
|   | Comments:               |   |          |
| <b>Planning Secretary approval (high risk activities)</b> | 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

| OOH Median South       |                  |                      |        |
|------------------------|------------------|----------------------|--------|
| <b>Proposed works</b>  | OOH Median South |                      |        |
| <b>Proponent</b>       | Quickway         |                      |        |
| <b>Assessment Date</b> | 04/08/2021       |                      |        |
| <b>Prepared by</b>     | Quickway         | <b>Assessment Id</b> | Median |

## 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.

### Early Works

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

Though subject to change, the works are expected to commence around 16/08/2021 and would be completed by 17/08/2021.

## 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.



**Table 1 Non-residential sensitive land uses noise management levels**

| Land use  | Noise assessment location | NML (L <sub>Aeq,15min</sub> ) |
|---|---------------------------|-------------------------------|
| 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 |
| <b>RBL</b> | 56              | 56          | 49                                  | 33    |       |
| <b>NML</b> | 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<sub>Amax</sub> 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 600 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

“ 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 <sub>Aeq, 15 minute</sub> noise level | 50 dB(A)                      |
| Number of highly noise affected receivers (>75 dB)                   | 0                             |
| 1 – 10 dB above NML  | 0                             |
| 10 – 20 dB above NML   | 0                             |
| 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    | 0                             |
| Clearly audible     | 5 – 15 dB above NML   | 0                             |
| Moderately impacted | 15 – 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.

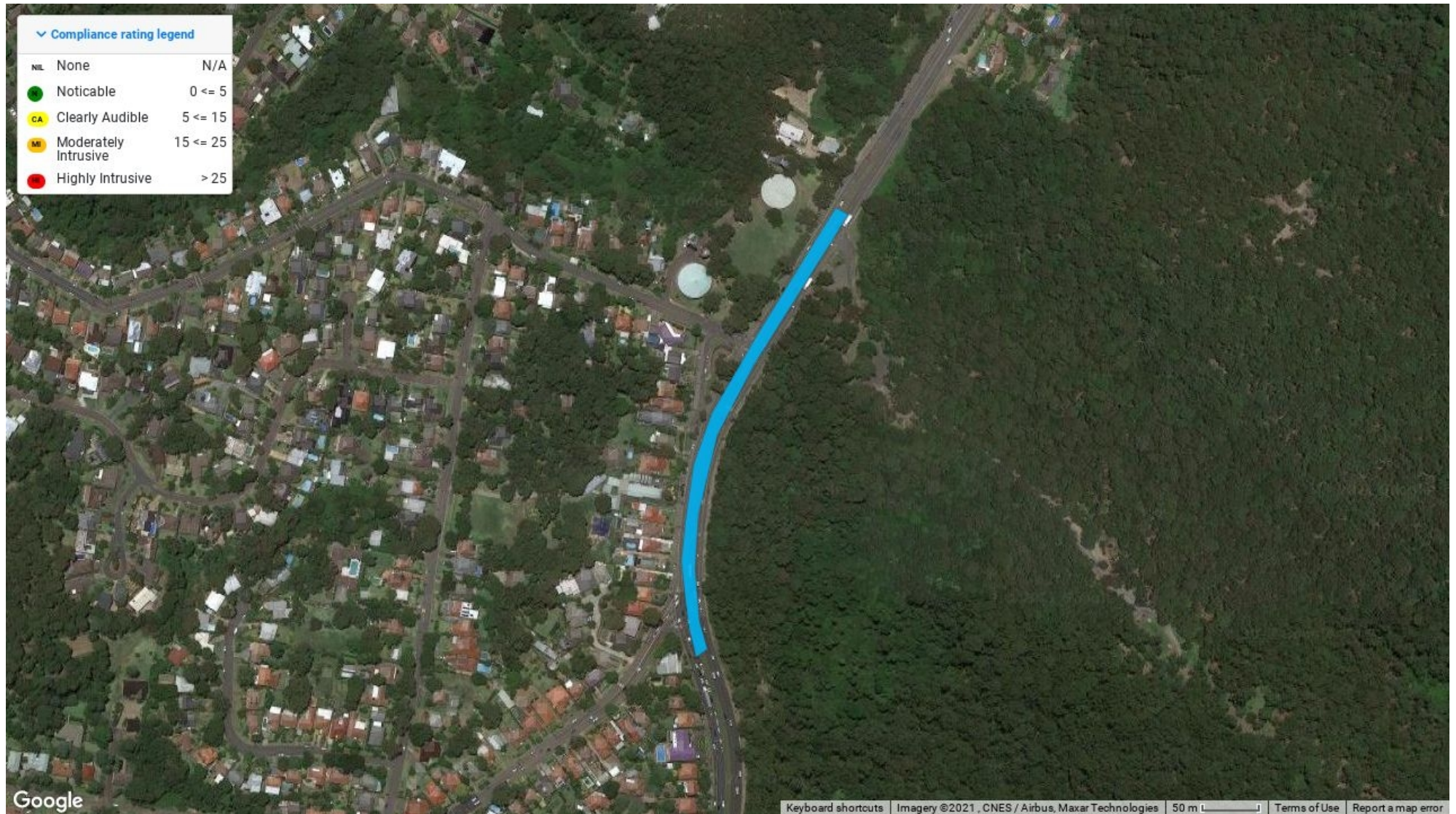
**Table 6 Safeguards and controls**

| 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"> <li>• all project specific and relevant standard noise and vibration mitigation measures</li> <li>• relevant licence and approval conditions</li> <li>• permissible hours of work</li> <li>• any limitations on high noise generating activities</li> <li>• location of nearest sensitive receivers</li> <li>• construction employee parking areas</li> <li>• designated loading/unloading areas and procedures</li> </ul> <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

### Early Works

| Equipment     | Quantity | Usage | Reduction | SWL |
|---------------|----------|-------|-----------|-----|
| Light vehicle | 2        | 40 %  | 0         | 84  |

**Activity Sound Power Level: 84**

## Appendix C Detailed noise predicted for each receiver and activity

| Assessment: OOH Median South                      |              |                       |           | Evening | Results summary                                  |                       |   |
|---|--------------|-----------------------|-----------|---------|--|-----------------------|---|
| NCA   | ID           | Address               | Land use  | NML     | Cumulative Predicted LAeq, 15 minute noise level | Exceedance of NML, dB | Impact classification                       |
| «TableStart:ComplianceItems»<br>«NcaFriendlyName» | «ReceiverId» | «AddressFriendlyName» | «LandUse» | «NML»   | «PredictedCumulativeLAEq»                        | «NMLExceedance»       | «ImpactClass»<br>«TableEnd:ComplianceItems» |



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

# Construction noise impact assessment

## Median Early Works - North

|                        |            |                      |        |
|------------------------|------------|----------------------|--------|
| <b>Proposed works</b>  | OOH Median |                      |        |
| <b>Proponent</b>       | Quickway   |                      |        |
| <b>Assessment Date</b> | 04/08/2021 |                      |        |
| <b>Prepared by</b>     | Quickway   | <b>Assessment Id</b> | Median |

### Introduction

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### Planned works

A description of the proposed works is as follows.

#### Early Works

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

Though subject to change, the works are expected to commence around 16/08/2021 and would be completed by 17/08/2021.

### 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.

**Table 1 Non-residential sensitive land uses noise management levels**

| Land use  | Noise assessment location | NML (L <sub>Aeq,15min</sub> ) |
|---|---------------------------|-------------------------------|
| 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 |
| <b>RBL</b> | 56              | 56          | 49                                  | 33    |       |
| <b>NML</b> | 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<sub>Amax</sub> 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 600 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

“ 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 <sub>Aeq, 15 minute</sub> noise level | 41 dB(A)                      |
| Number of highly noise affected receivers (>75 dB)                   | 0                             |
| 1 – 10 dB above NML  | 4                             |
| 10 – 20 dB above NML   | 0                             |
| 20+ dB above NML   | 0                             |

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    | 6                             |
| Clearly audible     | 5 – 15 dB above NML   | 0                             |
| Moderately impacted | 15 – 25 dB above NML  | 0                             |
| 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.

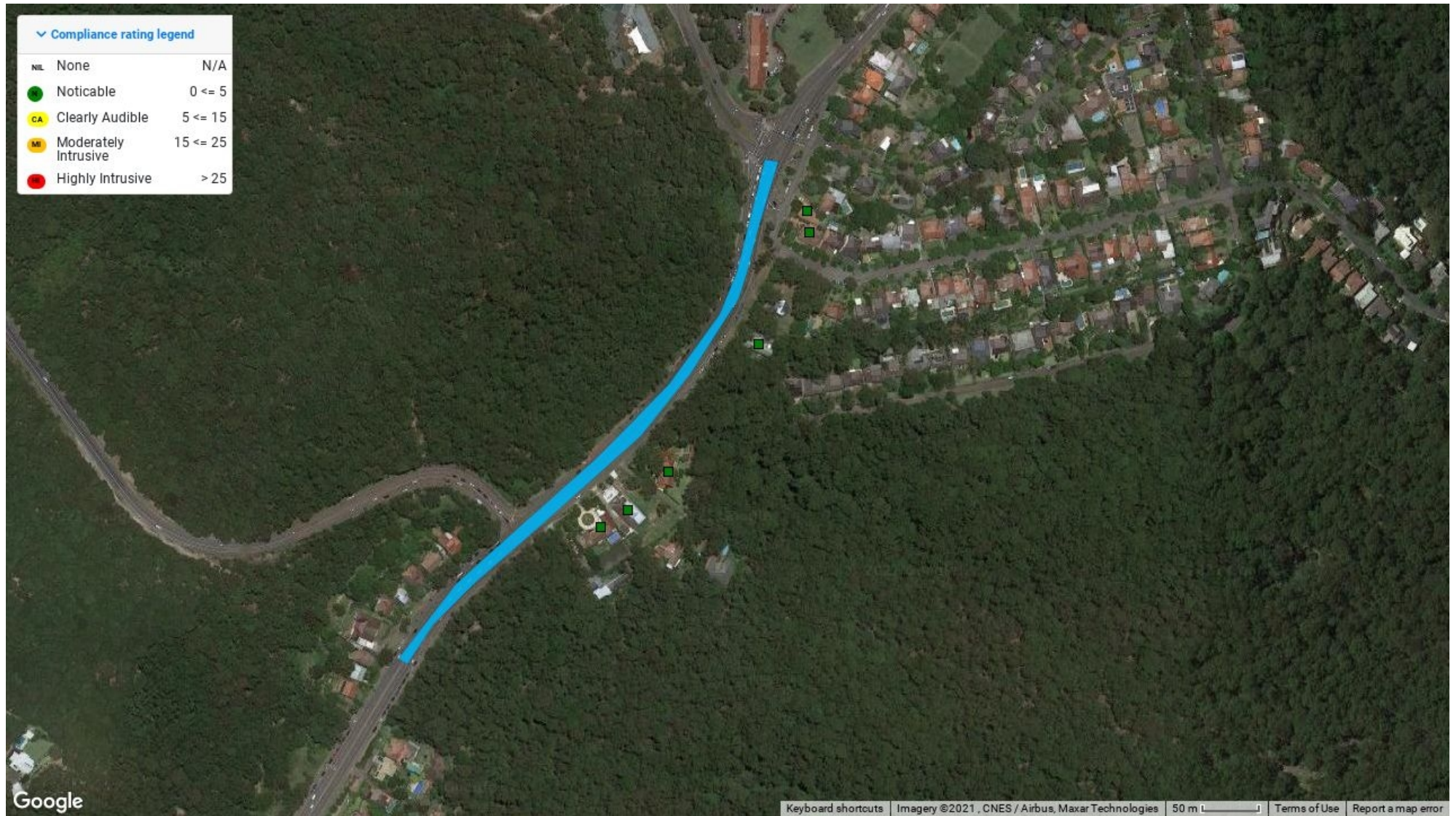
**Table 6 Safeguards and controls**

| 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"> <li>• all project specific and relevant standard noise and vibration mitigation measures</li> <li>• relevant licence and approval conditions</li> <li>• permissible hours of work</li> <li>• any limitations on high noise generating activities</li> <li>• location of nearest sensitive receivers</li> <li>• construction employee parking areas</li> <li>• designated loading/unloading areas and procedures</li> </ul> <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

### Early Works

| Equipment     | Quantity | Usage | Reduction | SWL |
|---------------|----------|-------|-----------|-----|
| Light vehicle | 1        | 40 %  | 0         | 81  |

**Activity Sound Power Level: 81**

## Appendix C Detailed noise predicted for each receiver and activity

| Assessment: OOH Median |        |                                     |          | Night | Results summary                                  |                       |                       |
|------------------------|--------|-------------------------------------|----------|-------|--|-----------------------|-----------------------|
| NCA                    | ID     | Address                             | Land use | NML   | Cumulative Predicted LAeq, 15 minute noise level | Exceedance of NML, dB | Impact classification |
|                        | 518303 | 79 LOOKOUT ROAD NEW LAMBTON HEIGHTS | RES      | 38    | 39   | 1                     | <b>Noticable</b>      |
|                        | 518296 | 81 LOOKOUT ROAD NEW LAMBTON HEIGHTS | RES      | 38    | 39   | 1                     | <b>Noticable</b>      |
|                        | 518294 | 2 RIDGEWAY ROAD NEW LAMBTON HEIGHTS | RES      | 38    | 38   | 0                     | <b>Noticable</b>      |
|                        | 518284 | 61 LOOKOUT ROAD NEW LAMBTON HEIGHTS | NONE     | 38    | 41   | 3                     | <b>Noticable</b>      |
|                        | 518275 | 71 LOOKOUT ROAD NEW LAMBTON HEIGHTS | RES      | 38    | 41   | 3                     | <b>Noticable</b>      |
|                        | 518252 | 83 LOOKOUT ROAD NEW LAMBTON HEIGHTS | RES      | 38    | 40   | 2                     | <b>Noticable</b>      |

**Appendix C – 3 Month Look Ahead Notification Letter**

## 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.

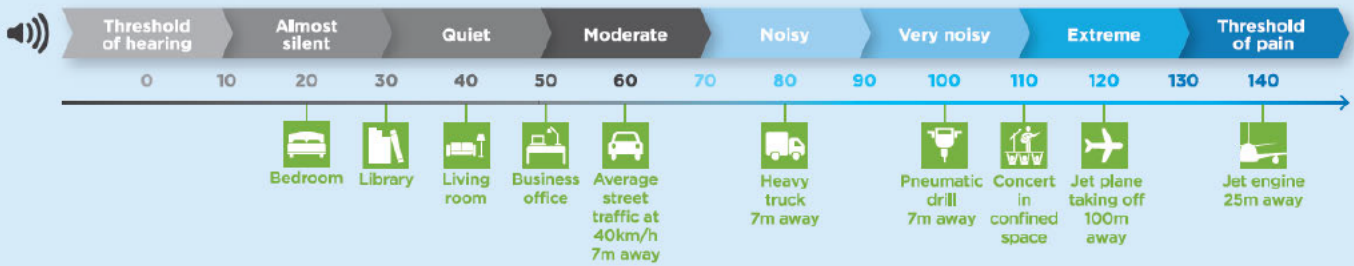
| Date         | Work Activity  | Equipment  |
|--------------|--|--|
| Late July    | Installing temporary traffic barriers and locating utility services on Lookout Road<br><b>Expected Duration - One Week</b>                       | Traffic control, mobile crane, trucks, excavator, sucker truck, lighting towers  |
| Early August | Tree clearing and site access works for watermain underbore on corner of McCaffery Drive and Lookout Road<br><b>Expected Duration - One Week</b> | Traffic control, trucks, excavators, elevated working platform, chain saw, lighting towers   |
| Mid August   | Installing overhead power poles on Lookout Road<br><b>Expected Duration - One Week</b>   | 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<br><b>Expected Duration - Two Weeks</b>                              | Traffic control, trucks, excavator, elevated working platforms, lighting towers  |
| September    | Trenched utility crossings across Lookout Road and Grandview Drive<br><b>Expected Duration - Two Weeks</b>                                       | 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<br><b>Expected Duration - Three Weeks</b>  | 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.

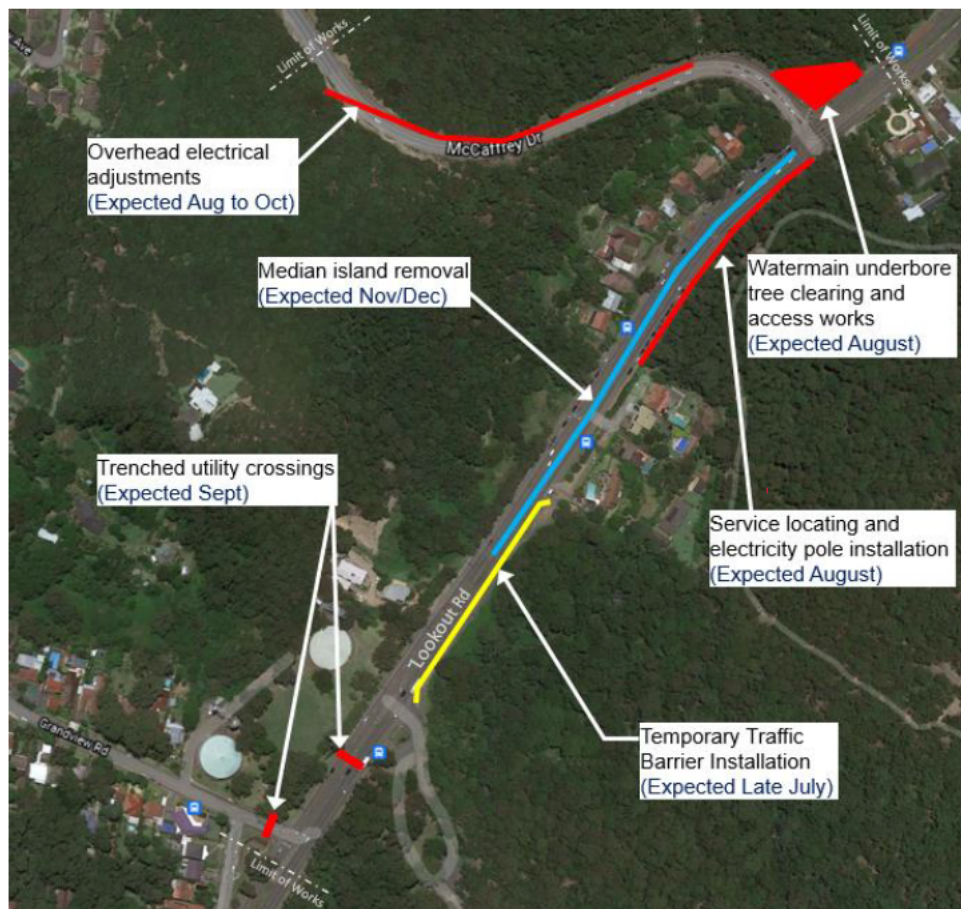
Please keep to speed limits and follow the direction of traffic controllers and signs. For the latest traffic updates, you can call 132 701, visit [livetraffic.com](http://livetraffic.com) or download the Live Traffic NSW App.

## 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](mailto:southern.utilities.RP2J@quickway.com.au)

For more information about the Newcastle Inner City Bypass between Rankin Park and Jesmond, visit [nswroads.work/rp2j](http://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 D – Approved 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 16<sup>th</sup> August** between **7pm** and **5am**.

The work will include setting up traffic control and installing traffic signage on the Lookout Road median.

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 (option 2) or by email at [southern.utilities.RP2J@quickway.com.au](mailto:southern.utilities.RP2J@quickway.com.au).

Yours sincerely

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