# Hunter Power Project

## Construction Noise and Vibration Management Plan

| Amended Final v3

15 February 2022

# Hunter Power Project

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| Project No: | IS354500 |
| Document Title: | Construction Noise and Vibration Management Plan |
| Revision: | Amended Final |
| Date: | 15 February 2022 |
| Client Name: | Snowy Hydro Limited |
| Project Manager: | Karl Ivanusic |
| Author: | Sean Brennan |
| File Name: | Hunter Power Project_Construction Noise and Vibration Management Plan_Final |

Jacobs Group (Australia) Pty Limited
ABN 37 001 024 095
ABN 37 001 024 095
Level 4, 12 Stewart Avenue
Newcastle West NSW 2302 Australia
PO Box 2147 Dangar NSW 2309 Australia
+61 2 4979 2600
+61 2 4979 2666
www.jacobs.com



## Document history and status

| Revision | Date | Description | Author | Checked | Reviewed | Approved |
|---|---|---|---|---|---|---|
| Final | 20 December 2021 | Final | S Brennan | P Horn | M Luger | K Ivanusic |
| Amended Final | 28 December 2021 | Final | S Brennan | I Smith | M Luger | K Ivanusic |
| Amended Final v2 | 24 January 2022 | Final | S Brennan | I Smith | M Luger | K Ivanusic |
| Amended Final v3 | 15 February 2022 | Final | S Brennan | I Smith | M Luger | K Ivanusic |

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# Glossary of terms

| Term | Definition |
|---|---|
| Decibel (dB) | A measure of sound level. The decibel is a logarithmic way of describing a ratio. The ratio may be power, sound pressure, voltage, intensity or other parameters. In the case of sound pressure, it is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure squared to a reference sound pressure squared |
| EPA Regulation | Environmental Planning and Assessment Regulation 2000 |
| Feasible and reasonable | Consideration of best practice considering the benefit of proposed measures and their technological and associated operational application in the NSW and Australian context. Feasible relates to engineering considerations and what is practical to build. Reasonable relates to the application of judgement in arriving at a decision, considering mitigation benefits and cost of mitigation versus benefits provided, community views and nature and extent of potential improvements |
| Mitigation | Action to reduce the severity of an impact |
| The Project | The Hunter Power Project; formerly referred to as the Kurri Kurri Power Station Project |
| Project Site | The area of land that is directly impacted on by a development, including access roads, and areas used to store construction material |
| Proponent | Snowy Hydro Limited |
| Rating Background Level (RBL) | The overall, single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period (as opposed to over each 24-hour period used for the assessment background level) |
| Receiver | The noise-sensitive land use at which noise from a development can be heard |
| Secretary | Planning Secretary under the EP&A Act, or nominee |
| Secretary's Approval | A written approval from the Planning Secretary and/or delegate |
| Sensitive receptor | A location where people are likely to work or reside; this may include a dwelling, school, hospital, office or public recreational area (EPA 2016) |
| Significant | Greater than 20% concentration value difference between impact site and reference site |

# Abbreviations

| Abbreviation | Definition |
|---|---|
| CEMS | Construction Environmental Management Strategy |
| CNVIS | Construction Noise and Vibration Impact Statement |
| dB(A) | Decibels using the A-weighted scale measured according to the frequency of the human ear |
| DPIE | NSW Department of Planning, Industry and Environment |
| EIS | Environmental Impact Assessment |
| EPA | NSW Environment Protection Authority |
| EPL | Environmental Protection Licence |
| ICNG | NSW Interim Construction Noise Guideline |
| $L_{A90}$ | The sound pressure level that is exceeded for 90% of the given measurement period |
| $L_{Aeq\ (15min)}$ | The A-weighted equivalent continuous (energy average) sound pressure level of the construction works under consideration over a 15-minute period and excludes other noise sources such as from industry, road, rail and the community |
| $L_{Aeq\ (9hour)}$ | The A-weighted equivalent continuous (energy average) sound pressure level of the construction works under consideration over a 9-hour period and excludes other noise sources such as from industry, road, rail and the community |
| $L_{Amax}$ | the A-weighted maximum noise level only from the construction works under consideration, measured using the fast time weighting on a sound level meter |
| LEP | Local Environmental Plan |
| NML | Noise Management Level |
| NVMP | (Construction) Noise and Vibration Management Plan (this Plan) |
| NPI | Noise Policy for Industry |
| OOHW | Out of Hours Work |
| SWL | Sound Power Level |

# 1. Introduction

## 1.1 Context

This Construction Noise and Vibration Management Plan (NVMP) has been developed to address Infrastructure Approval Condition C1(e)(ii) issued for the Hunter Power Project ('Project') by the Planning Secretary (Secretary) of the NSW Department of Planning, Industry and Environment (DPIE). All relevant conditions are outlined below.

Table 1-1: Infrastructure Approval conditions

| Condition | Requirement | NVMP Reference |
|---|---|---|
| C1 | Prior to commencing construction, the Proponent must prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This Strategy must:<br>(e) include:<br>(i) the following sub-plans:<br>▪ Construction noise management plan prepared in consultation with the EPA. | Sections 4.3, 6.2 and 7.2 |
| B30 | **Hours of Construction**<br>All construction work at the premises must be conducted between 7 am and 6 pm Monday to Friday and between 8 am and 1 pm Saturdays and at no time on Sundays and public holidays. | Section 1.2.3 and 4.2 |
| B31 | **Exceptions to Construction Hours**<br>The following activities may be carried out outside the recommended construction hours:<br>(a) construction that causes LAeq(15minute) noise levels that are:<br>(i) no more than 5 dB above Rating Background Level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009); and<br>(ii) no more than the Noise Management Levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses; or<br>(b) for the delivery of materials required by the police or other authorities for safety reasons; or<br>(c) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or<br>(d) as approved through the process outlined in condition B32 of this approval. | Section 1.2.3 and 4.2 |
| B32 | **Variation of Construction Hours**<br>The hours of construction activities specified under condition B30 of this approval may be varied with the prior written approval of the Secretary. Any request to alter the hours of construction shall be:<br>(a) considered on a case-by-case or activity-specific basis;<br>(b) accompanied by details of the nature and justification for activities to be conducted during the varied construction hours;<br>(c) accompanied by written evidence that appropriate consultation with potentially affected sensitive receivers and notification of | Section 1.2.3, 4.2 and 6.6 |

| | | |
|---|---|---|
| | relevant Council(s) (and other relevant agencies) has been and will be undertaken;<br>(d) all feasible and reasonable noise mitigation measures have been put in place; and<br>(e) accompanied by a noise impact assessment consistent with the requirements of the Interim Construction Noise Guideline (DECCW, 2009), or latest version. | |

### 1.1.1 Purpose

The purpose of this NVMP is to provide details on the framework of mitigation and management measures proposed to address potential noise and vibration impact resulting from the construction of the Project.

### 1.1.2 Scope

This NVMP has been developed to address the construction works specifically occurring in relation to the Project under the Infrastructure Approval conditions provided by the NSW DPIE to fulfil the requirements of the approval.

### 1.1.3 Objectives

The NVMP has been prepared to ensure that all conditions, management and mitigation measures detailed in the Environmental Impact Statement and Response to Submissions reports and all other licence and permit requirements have been adequately described, assigned and scheduled. The documents with requirements that have been addressed include:

- The Environmental Impact Statement (EIS) prepared for the Hunter Power Project (Jacobs, 2021a)
- The Response to Submissions Report prepared for the Hunter Power Project (Jacobs, 2021b)
- Infrastructure Approval conditions
- Environment Protection Licence (EPL) 21627.

### 1.1.4 Goals and targets

The following goals and targets have been established to guide the management of noise and vibration impacts from the construction of the project:

- Compliance with all conditions, EPL requirements (refer Appendix 2) and all other regulatory requirements
- Consideration of all mitigation measures detailed in the EIS and Response to Submissions reports
- Ensure training and inductions pertaining to noise and vibration management are provided to all staff working on site prior to starting work
- Assure all noise and vibration impacts are adopted in an efficient manner
- Produce no exceedances of relevant noise limits

### 1.1.5 Project location

The Project Site address is 73 Dickson Road, Loxford. Access to the property is via Hart Road and the property is approximately 1.0 kilometre (km) from the M15 Hunter Expressway as shown in Figure 1-1 and Figure 1-2. The Project Site is shown in Figure 1-3.

The Project Site will be part of an Industrial Estate development. The planning proposal, currently under consideration by Cessnock City Council and the NSW DPIE, would rezone the Project Site as Heavy Industrial. The

Project Site and its surrounds are currently zoned RU2 Rural Landscape under the Cessnock Local Environmental Plan 2011 (Cessnock LEP), with small pockets of surrounding land zoned E2 Environmental Conservation.

### 1.1.6 Access

The Project Site is accessed off Hart Road, which is adequate for construction and operation activities. During construction and operation, all vehicular access to the Project Site, including heavy vehicles would be via the Hunter Expressway and Hart Road. Parking for staff will be provided on-site.

Refer to Appendix 1 (which includes figures and information provided in the Traffic Management Plan)for further detail on construction access and workforce parking, reiterated from the Traffic Management Plan.

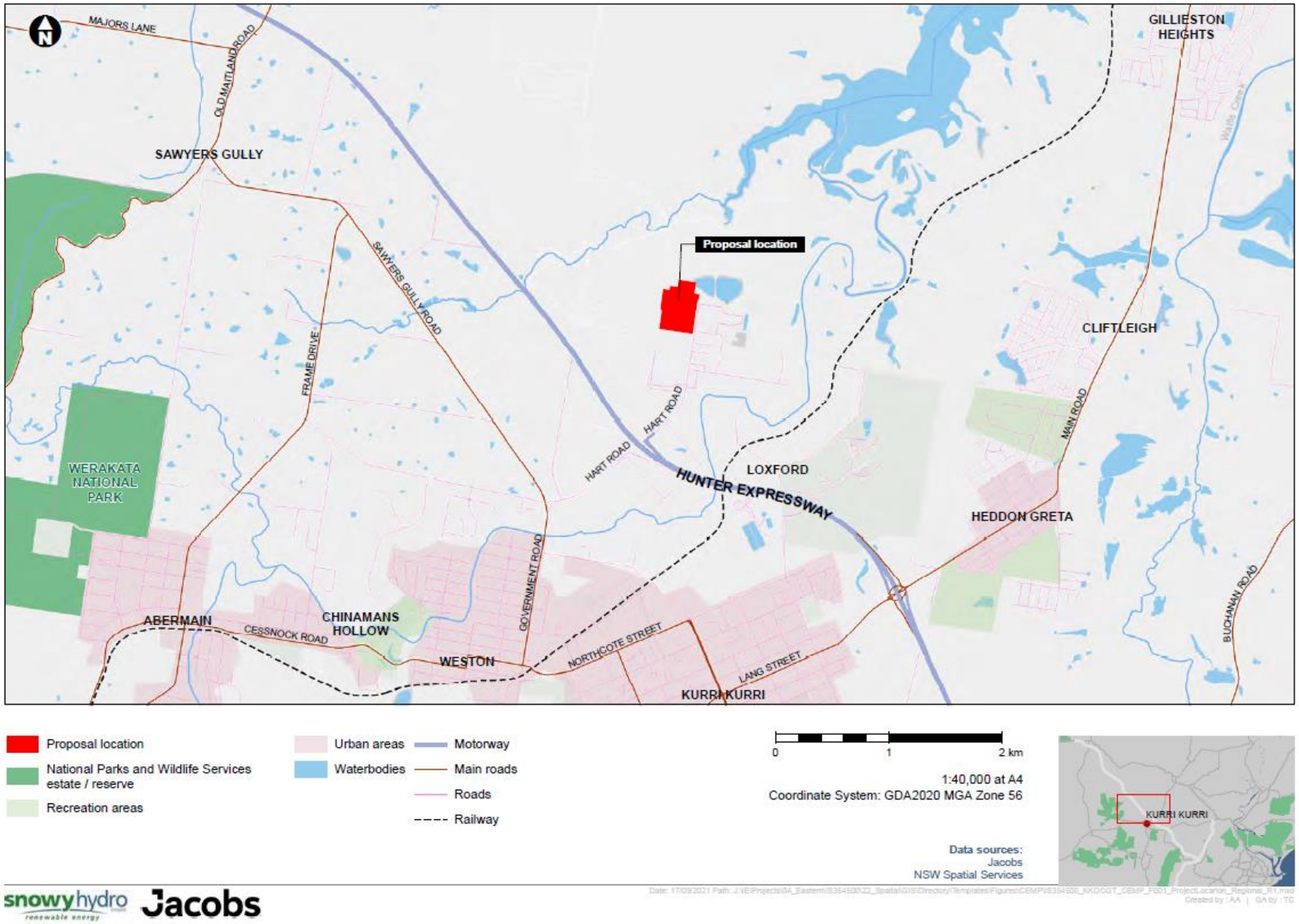



Figure 1-1: Project Location (regional)

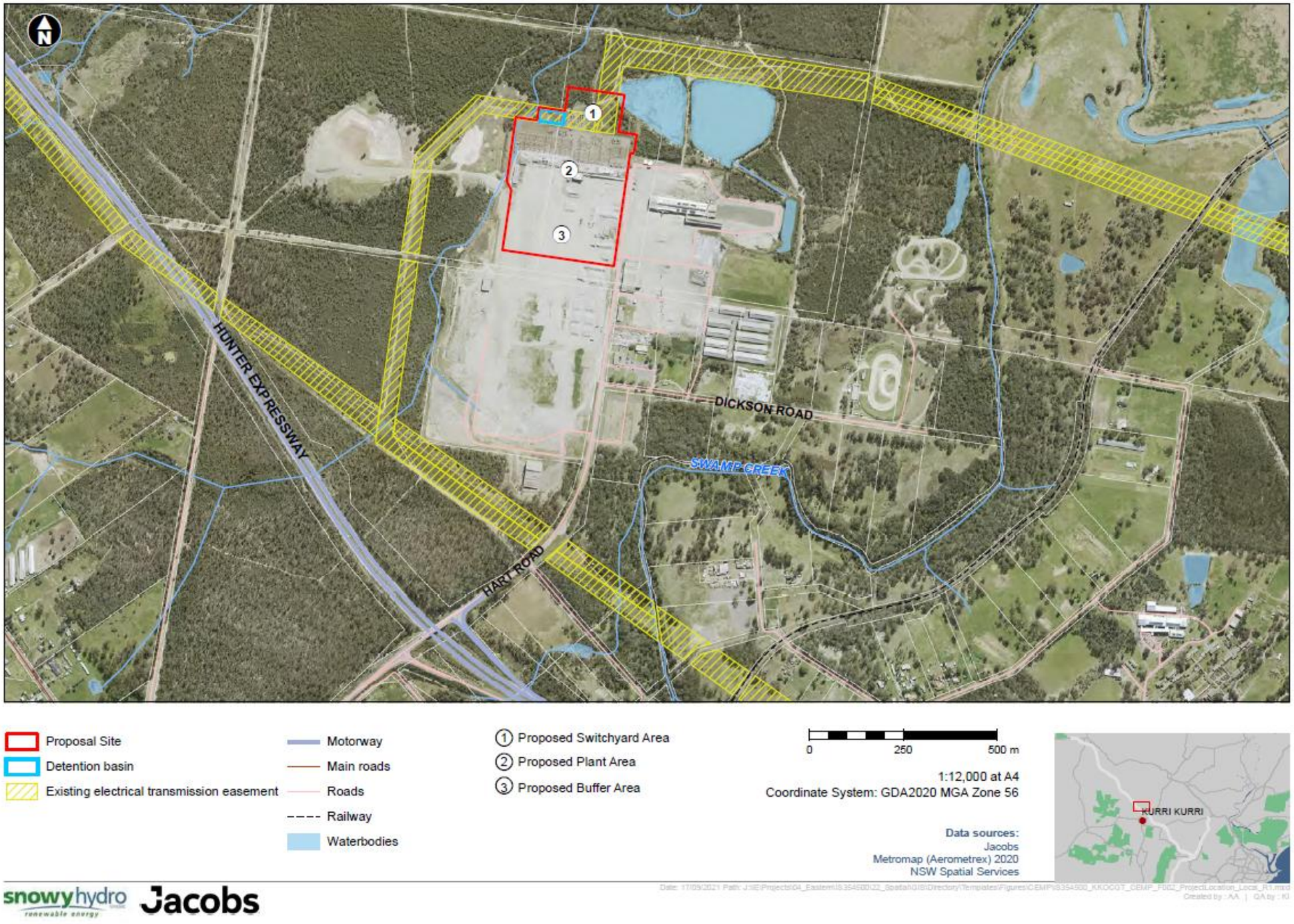



Figure 1-2: Project Location (local)

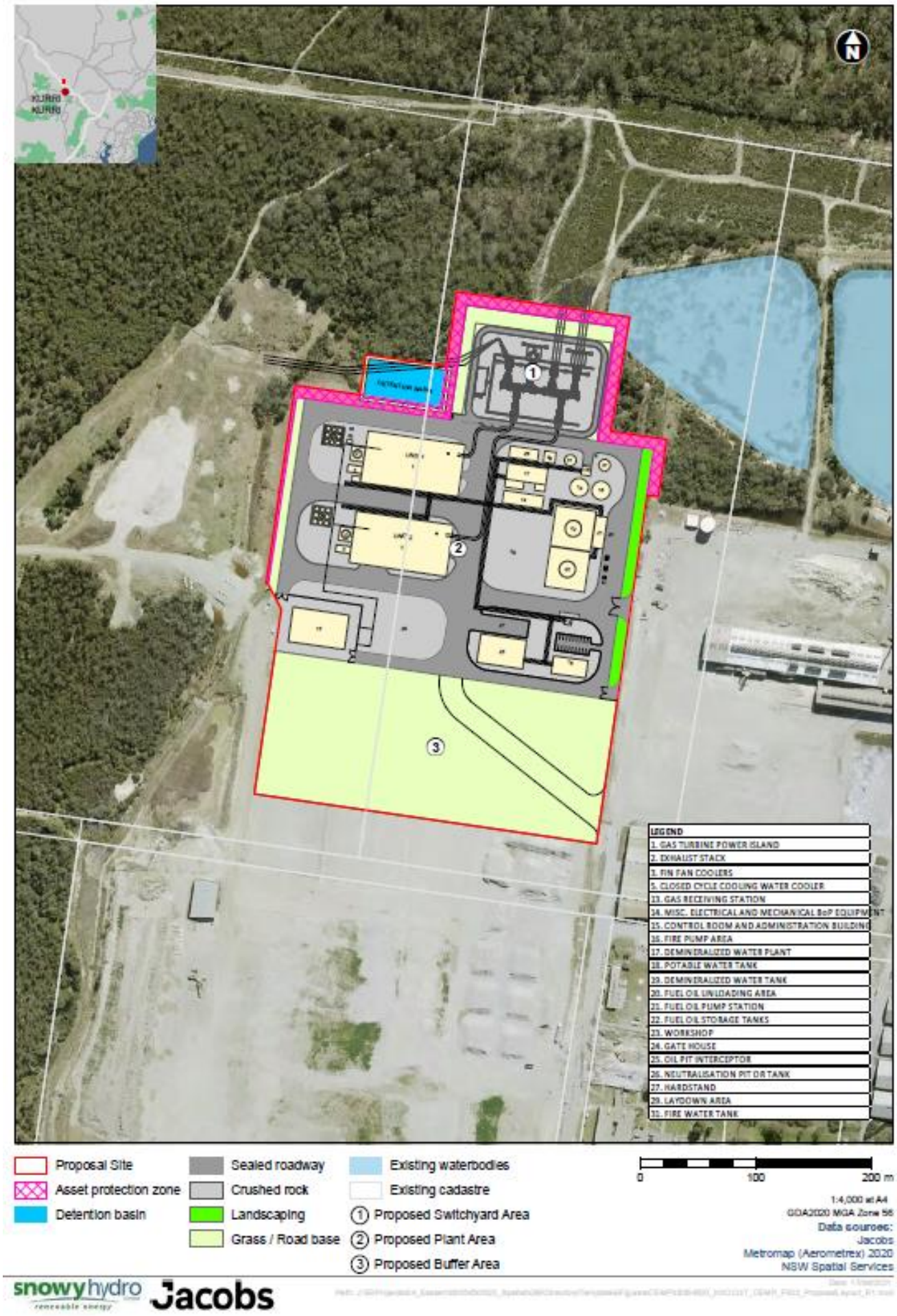



Figure 1-3: Site layout

## 1.2 Project construction

### 1.2.1 Works within construction scope

The key construction activities for the Project are summarised in Table 1-2 and are covered under the Construction Environmental Management Strategy (CEMS) unless noted otherwise. Preliminary work and pre-construction activities that are not considered construction include road dilapidation surveys, installation of fencing, and geotechnical drilling and/or surveying.

Table 1-2: Construction activity summary

| Construction stage | Construction activity per program | Activity details |
|---|---|---|
| Pre-construction/ site establishment | Site access, civil works, and road construction to establish site | ▪ Installation of environmental controls, which may include: temporary sheds, amenities, fencing, erosion and sediment controls, laydown/stockpiling areas, site surveys and, initial internal road building |

| Construction stage | Construction activity per program | Activity details |
|---|---|---|
| | | ▪ Construction of reinforced concrete pavement to support heavy vehicles (up to B-double size)<br>▪ Internal road layout design to account for turning paths of large vehicles, cranes, and articulated vehicles, so that movements in and out can be made in a forward direction<br>▪ Roadworks and hardstand areas to be constructed for car parking, delivery/laydown areas<br>▪ Where required, bunded areas for delivery, handling, and storage of fuel and other hazardous material would be constructed |
| Construction | Switchyard site preparation | ▪ Clearing of vegetation |
| Site establishment and construction | Earthworks to prepare the Project Site and construction areas | ▪ Initial site clearing and grading works. Earthworks may involve small amounts of cut and fill to achieve the necessary design levels across the site<br>▪ Trenching for underground utilities and services would be installed such as stormwater, water and sewer reticulation, electrical cables, and (internal) gas pipes between the gas receiving station and the gas turbine locations<br>▪ Preparation and construction of foundations. Deep piling is expected to support the heaviest infrastructure such as the gas turbines, generator and the main step-up transformers while shallower piling or pad type foundations would underpin the foundations where the proposed surface loads are less (e.g. site office/administration buildings, car park). Final numbers and depth of foundation piles will be subject to detailed design, as is the piling method (i.e. bored; driven; vibration piling)<br>▪ Reinforced concrete slabs would be constructed in certain pavement areas, with other areas being surfaced with crushed rock or other suitable materials |
| Construction | Balance of plant, switchyard construction, & turbine installation | ▪ Installation of major plant items associated with the gas turbines including all above ground civil, mechanical, electrical plant equipment<br>▪ Installation of electrical switchyard |
| Commissioning | Commissioning and testing (excluded from construction scope) | ▪ Program of testing and certification of all Project components, systems, and processes to demonstrate the Project can operate to the required standards before commencing operation |
| Post-construction/demobilisation | Demobilisation | ▪ Removal of construction equipment, site fencing and construction compounds<br>▪ Installation and establishment of landscaping. |

### 1.2.2 Construction program

The initial phase of construction to prepare the site and install environmental controls is expected to commence in early 2022 pending the acquisition of all approvals. An indicative program for construction is shown in Figure 1-4.

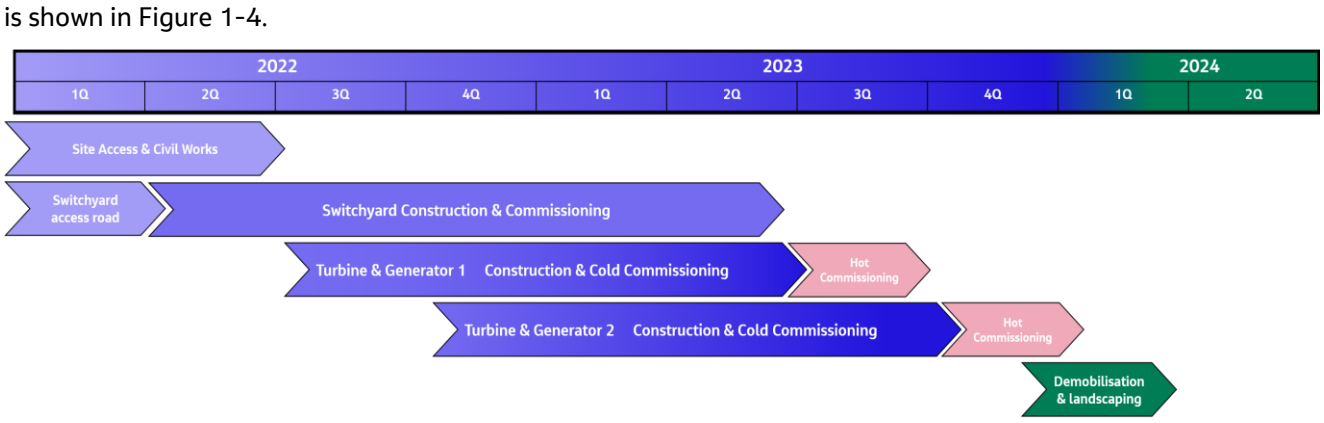



Figure 1-4: Construction program

### 1.2.3 Construction hours and workforce

All construction work will be undertaken during standard construction hours, which are defined as:

- 7:00am to 6:00 pm Monday to Friday, inclusive
- 8:00 am to 1:00 pm on Saturday
- At no time on Sunday or Public Holidays.

Exceptions to conducting construction activities outside of these hours may occur for the following activities in accordance with the Infrastructure Approval Condition B31:

- Activities that cause noise levels LAeg(15min) no more than 5 decibels (dB) above Rating Background Level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009), and no more than the Noise Management Levels (NMLs) specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses
- For the delivery of material required by the police or other authorities for safety reasons
- Where it is required in an emergency to avoid the loss of lives, property, and/or to prevent environmental harm
- As approved with prior written approval of the Secretary, outlined Condition B32.

# 2. Existing environment

The Project Site is located entirely within a former industrial area, on land formerly occupied by the Kurri Kurri aluminium smelter, which closed permanently in 2014 and is still undergoing demolition and remediation works.

Land use surrounding the Project Site is described as follows:

- To the west is Sawyers Gully, a suburb predominately comprised of farmland and sparsely distributed receivers. The suburb is adjacent to the Hunter Expressway, with a number of receivers in close proximity to the carriageway.
- To the southeast of the Project Site is Loxford
  - The western extent of Loxford, directly south of the Project Site comprises of sparsely distributed residential receivers with some industry, notably a pipe and manifold manufacturing facility. The Noise Catchment Area (NCA) is adjacent to both the Hunter Expressway and the Kurri Kurri Wastewater Treatment Works. Under the proposed rezoning, the northern and eastern sections of the NCA will be rezoned to General Industry while the southern section would be rezoned to Low Density Residential.
  - The eastern side of Loxford (to the southeast of the Project Site), comprises of sparsely distributed residential receivers with the nearby Kurri Kurri TAFE. Under the proposed zoning, the residential areas of this section of Loxford would be rezoned as Low Density Residential.
- Further east of Loxford is the township of Cliftleigh, which predominately features residential and commercial properties. The township also features a number of new and proposed residential developments.
- Northeast of the Project Site, the area of Gillieston North comprises isolated farmhouses and pasture
- Approximately 2 km south of the Project Site is an existing industrial area, and slightly further south is the township of Kurri Kurri which is predominately residential and commercial.

The surrounding land uses and noise sensitive receivers are detailed in Figure 2-1.

A summary of background noise levels is shown below in Table 1-1 which refers to the Noise Catchment Areas shown in Figure 2-2. Revised background noise monitoring was performed during a period of 14 days between the 29 June and 13 July 2021. This monitoring was performed in response to commentary from the Environmental Protection Authority and in addition to the background noise monitoring performed in December 2020 and January 2021. A monitoring location was selected to represent each of the NCAs. Monitoring was undertaken during the winter period in order to limit insect and other environmental noise to the greatest extent possible. It was noted that the evening period was louder than the day period at most noise monitoring locations, as a result of the noise controlling nature of traffic along the Hunter Expressway at NCA 1 and to a lesser extent NCA 2, as well as a result of frogs and other wildlife becoming more active (pertaining especially to NCAs 3, 4 and 5). In those cases, the criterion derived from these noise levels were adjusted to prevent the more sensitive time period from having a less noise sensitive criterion.

| Monitor ID | NCA | Monitoring Location | Monitoring Duration | Measurement | Measured Noise Level – dB(A) | | |
|---|---|---|---|---|---|---|---|
| | | | | | Day (7:00 am to 6:00 pm) | Evening (6:00 pm to 10:00 pm) | Night (10:00 pm to 7:00 am) |
| NM1 | NCA 1 | 103 Bishops Bridge Rd, Sawyers Gully | 29 June 2021 – 13 July 2021 | $L_{Aeq}$ (equivalent noise level) | 55 | 57 | 53 |
| | | | | RBL (Background $L_{A90}$) | 45 | 45 | 36 |
| NM2 | NCA 2 | 10 Dawes Ave, Loxford | 29 June 2021 – 13 July 2021 | $L_{Aeq}$ (equivalent noise level) | 48 | 47 | 46 |
| | | | | RBL (Background $L_{A90}$) | 40 | 43 | 38 |
| NM3 | NCA 3 | 20 Bowditch Ave, Loxford | 29 June 2021 – 13 July 2021 | $L_{Aeq}$ (equivalent noise level) | 47 | 44 | 44 |
| | | | | RBL (Background $L_{A90}$) | 38 | 39 | 37 |
| NM4 | NCA 4 | 464 Cessnock Rd, Gillieston Heights | 29 June 2021 – 13 July 2021 | $L_{Aeq}$ (equivalent noise level) | 43* | 38* | 38* |
| | | | | RBL (Background $L_{A90}$) | 29* | 33* | 30* |
| NM5 | NCA 5 | 60 Metcalfe Lane, Sawyers Gully | 29 June 2021 – 13 July 2021 | $L_{Aeq}$ (equivalent noise level) | 45 | 46 | 42 |
| | | | | RBL (Background $L_{A90}$) | 37 | 41 | 35 |

Table 2-1: Background noise levels

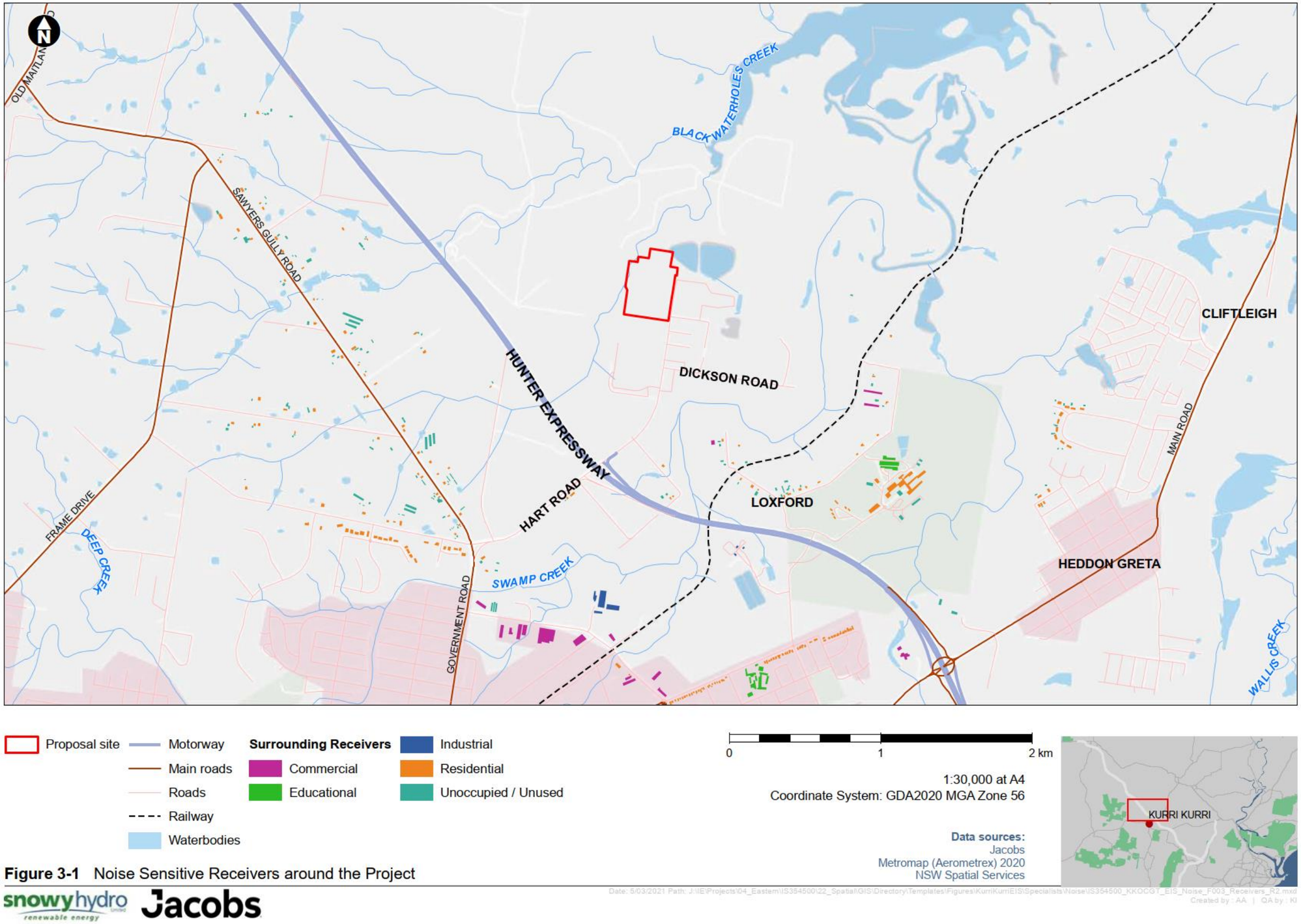



Figure 2-1: Noise sensitive receivers around the Project Site

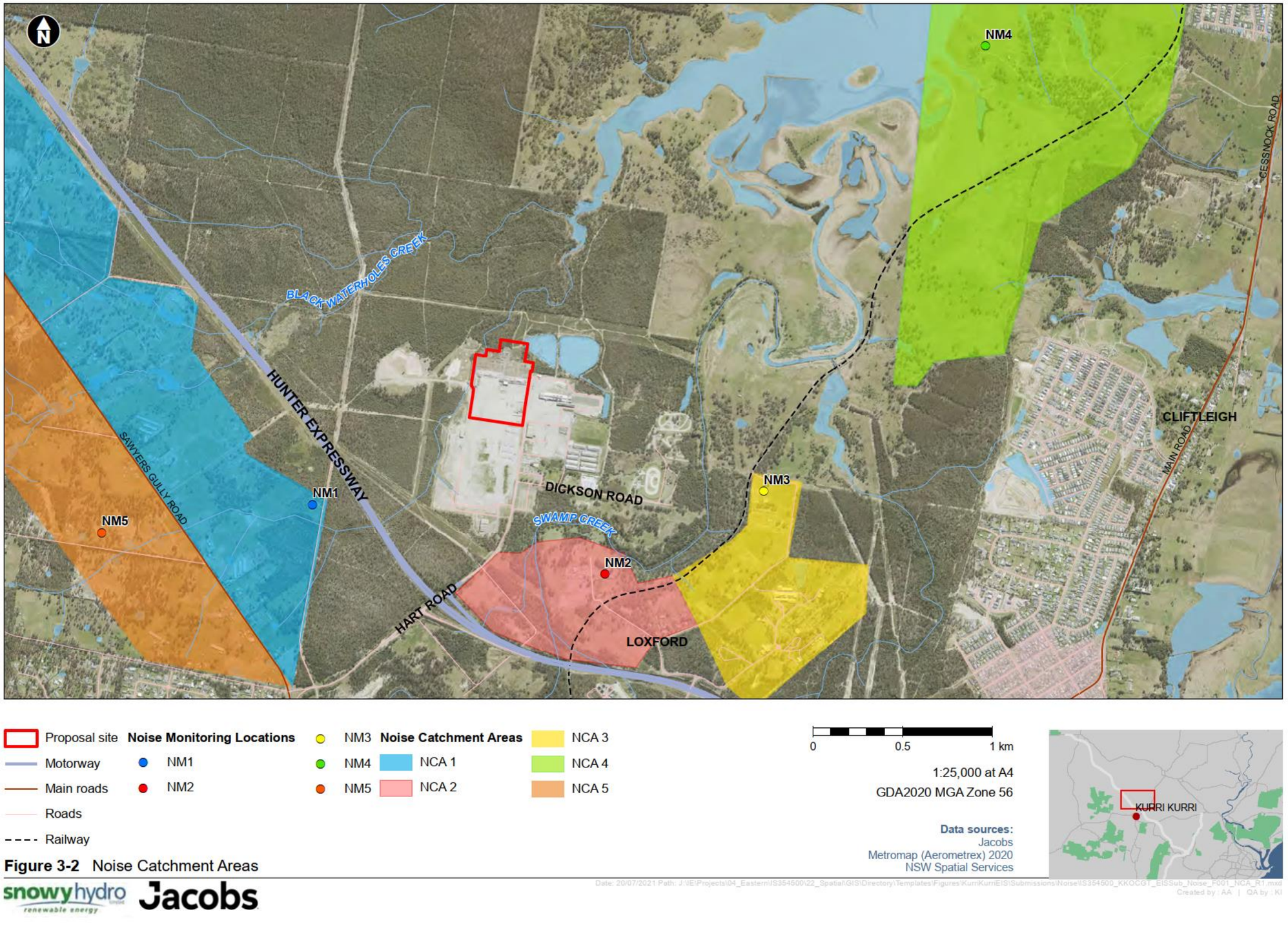



Figure 2-2: Noise Catchment Areas

# 3. Legislative context

## 3.1 Relevant legislation

All legislation relevant to the NVMP is included in the CEMS.

## 3.2 Relevant guidelines

The main guidelines, standards and policies relevant to this NVMP include:

- NSW Interim Construction Noise Guideline (ICNG) (Department of Environment and Climate Change, 2009)
- NSW Road Noise Policy (Department of Environment and Climate Change, 2011)
- NSW EPA Noise Policy for Industry 2017
- Assessing Vibration: a technical guideline (Department of Environment and Conservation, 2006)
- British Standard BS 7385-2:1993 Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from groundborne vibration
- British Standard BS 6472-1: 2008 Guide to evaluation of human exposure to vibration in buildings Part 1: Vibration sources other than blasting
- German Standard DIN 4150-3 Vibrations in buildings – Part 3: Effects on structures

## 3.3 Infrastructure Approval conditions

The applicable Infrastructure Approval conditions relevant to the NVMP are listed in Table 1-1.

## 3.4 Environment Protection Licence (EPL)

## 3.5 EPL 21627 is included as an Appendix and contains the conditions administered by the NSW EPA for the Scheduled Development Work for the project and operational conditions.EIS commitment

Other environmental requirements established for construction noise in the EIS (Jacobs 2021a) have been detailed in Table 3-1.

Table 3-1: EIS commitment

| EIS Mitigation Measure | Mitigation measure | Document Reference |
|---|---|---|
| NV1 | A Construction Noise and Vibration Management Plan (NVMP) will be developed to manage noise during construction. This will include consideration of plant selection, construction hours, plant maintenance, construction traffic and transport, staff awareness, construction staging and monitoring. | This Document |

## 3.6 Consultation

Infrastructure Approval Condition C1(e)(i) requires this management plan to be prepared in consultation with the EPA. The EPA was invited to comment on the draft air quality and water management plans on 12 November 2021, however has declined this opportunity. A summary of this consultation outcome is provided in

Table 3-2. The EPA was further consulted on the 15th February regarding this Construction Noise Management Plan and similarly declined to comment. Evidence of the consultation has been provided to the Department.

Table 3-2: Consultation feedback and response

| Agency | Feedback | Response & section reference |
|---|---|---|
| NSW EPA | EPA responded they "encourage the development of [management plans] to ensure that proponents and licensees have determined how they will meet their statutory obligations and designed environmental objectives. Being a regulatory authority, the EPA's role is to administer and regulate the statues for environmental management and protection. As such the EPA does not directly get involved in the development of strategies to achieve those objectives and does not review or comment on such plans." | Noted |

# 4. Noise and vibration objectives

## 4.1 Summary of objectives

The relevant policies and standards used to determine construction noise and vibration mitigation and management objectives have been detailed in Table 4-1.

Table 4-1: Summary of noise and vibration objectives

| Impact/ issue | Relevant policy, standard and/or guideline used to establish noise and vibration management levels |
|---|---|
| Work hours | Infrastructure Approval conditions<br>EPL |
| Airborne noise | Infrastructure Approval conditions<br>Interim Construction Noise Guideline<br>NSW EPA Noise Policy for Industry |
| Human comfort vibration impact | Assessing Vibration: A technical guideline |
| Cosmetic building damage vibration impact | BS 7385-2:1993 Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from groundborne vibration<br>AS2187.2 – 2006 Explosives – Storage and use Part 2: Use of explosives |
| Heritage structure damage vibration impact | DIN 4150-3 Vibrations in buildings – Part 3: Effects on structures |
| Buried services damage vibration impact | DIN 4150-3 Vibrations in buildings – Part 3: Effects on structures |

## 4.2 Construction hours

Construction working will be undertaken in accordance with conditions B30 and B31, as well as those specified in EPL 21627 (refer Appendix 2). The working hours approved under these conditions is detailed in Table 4-2 below. As per the table, wherever possible, works should be undertaken during the standard construction hours of 7am – 6pm Monday to Friday and 8am – 1pm Saturday, however certain works can be undertaken outside of those times.

For all other work or activities outside standard hours (those that don't meet the exceptions provided in Condition B31), work/activities will not be undertaken, or an assessment of OOHW will be undertaken in accordance with the protocol detailed in section 6.5 and the EPL conditions.

Table 4-2: Summary of Working Hours for the Project

| Condition | Requirement | Working Hours | | |
|---|---|---|---|---|
| | | Monday - Friday | Saturday | Sunday & Public Holidays |
| B30 | All construction work at the premises must be conducted between 7am and 6pm Monday to Friday and between 8am and 1pm Saturdays and at no time on Sundays and public holidays. | 7am to 6pm | 8am to 1pm | No Work |

| Condition | Requirement | Working Hours | | |
|---|---|---|---|---|
| | | Monday - Friday | Saturday | Sunday & Public Holidays |
| B31 | The following activities may be carried out outside the recommended construction hours:<br>a) construction that causes $L_{Aeq(15min)}$ noise levels that are:<br>i. no more than 5 dB above Rating Background Level at any residence in accordance with the *Interim Construction Noise Guideline* (DECC, 2009); and<br>ii. no more than the Noise Management Levels specified in Table 3 of the *Interim Construction Noise Guideline* (DECC, 2009) at other sensitive land uses; or<br>b) for the delivery of materials required by the police or other authorities for safety reasons; or<br>c) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or<br>d) as approved through the process outlined in condition B32 of this approval. | 6pm to 7am | 1pm to 8am | Any Time |
| B32 | The hours of construction activities specified under condition B30 of this approval may be varied with the prior written approval of the Secretary. Any request to alter the hours of construction will be:<br>a) considered on a case-by-case or activity-specific basis;<br>b) accompanied by details of the nature and justification for activities to be conducted during the varied construction hours;<br>c) accompanied by written evidence that appropriate consultation with potentially affected sensitive receivers and notification of relevant Council(s) (and other relevant agencies) has been and will be undertaken;<br>d) all feasible and reasonable noise mitigation measures have been put in place; and<br>e) accompanied by a noise impact assessment consistent with the requirements of the Interim Construction Noise Guideline (DECCW, 2009), or latest version. | 6pm to 7am | 1pm to 8am | Any Time |

## 4.3 Construction noise objectives

### 4.3.1 Noise management levels

The ICNG provides guidance for assessing noise from construction activities in NSW. It establishes NMLs for recommended standard construction hours and for outside of the recommended standard hours. Construction is

considered to have the potential to cause a noise impact if the predicted noise exceeds the applicable noise management level. Table 4-3 lists ICNG guidance for establishing construction NMLs at residential receivers.

Table 4-3: ICNG guidance for establishing construction NMLs at residential receivers

| Time of day | Management level<br>$L_{Aeq(15min)}$ | How to apply |
|---|---|---|
| Recommended standard hours (SH):<br>Monday to Friday 7am to 6pm<br>Saturday 8am to 1pm<br>No work on Sundays or public holidays | Noise affected:<br>Rating Background Level (RBL) + 10 dB(A) | The noise affected level represents the point above which there may be some community reaction to noise.<br>Where the predicted or measured $L_{Aeq(15\ min)}$ is greater than the noise affected level, Snowy Hydro (Proponent) should apply all feasible and reasonable work practices to meet the noise affected level.<br>The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details. |
| | Highly noise affected:<br>75 dB(A) | The highly noise affected level represents the point above which there may be strong community reaction to noise.<br>Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: times identified by the community when they are less sensitive to noise such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times. |
| Outside recommended standard hours (OOH) - All other times including public holidays | Noise affected:<br>RBL + 5 dB(A) | A strong justification would typically be required for works outside the recommended standard hours.<br>The proponent should apply all feasible and reasonable work practices to meet the noise affected level.<br>Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community.<br>For guidance on negotiating agreements see section 7.2.2 of the ICNG. |

Considering the adopted Rating Background Levels (RBLs) presented in the revised noise report (Appendix G, Response to Submissions) and reproduced in Section 2, the Noise Management Levels (NMLs) for the identified surrounding residential receivers grouped into NCAs are presented in Table 4-4.

Table 4-4: Construction noise management levels (residential receivers)

| NCA | NML $L_{eq\ 15\ min}$ dB(A) | | | |
|---|---|---|---|---|
| | Day (during standard hours)<br>7:00 am – 6:00 pm Weekdays, 8:00 am – 1:00 pm Saturdays | Day (outside standard hours)<br>7:00 am – 6:00 pm Outside of Standard Hours | Evening<br>6:00pm-10:00pm | Night<br>10:00pm-7:00am |
| NCA 1 | 55 | 50 | 50 | 41 |
| NCA 2 | 50 | 45 | 45* | 43 |

| NCA | NML $L_{eq\ 15\ min}$ dB(A) | | | |
|---|---|---|---|---|
| | Day (during standard hours)<br>7:00 am – 6:00 pm Weekdays, 8:00 am – 1:00 pm Saturdays | Day (outside standard hours)<br>7:00 am – 6:00 pm Outside of Standard Hours | Evening<br>6:00pm-10:00pm | Night<br>10:00pm-7:00am |
| NCA 3 | 48 | 43 | 43* | 42 |
| NCA 4 | 45** | 40** | 35** | 35** |
| NCA 5 | 47 | 42 | 42* | 40 |

*Criteria reduced so Evening criteria is not higher than Day OoH criteria.*
*** Criteria derived from the NPI's minimum assumed RBLs (Table 2.1 of NPI).*

The ICNG also provides construction NMLs for non-residential land uses. These are presented in Table 4-5.

Table 4-5: ICNG NMLs for non-residential receivers

| Non-residential receiver type | Noise management level, $L_{Aeq(15min)}$ (applies when properties are being used) |
|---|---|
| Commercial | External Noise Level – 70 dB(A) |
| Industrial | External Noise Level – 75 dB(A) |
| Educational facilities | Internal Noise Level – 45 dB(A) |
| Hospital / Medical | Internal Noise Level – 45 dB(A) |
| Place of Worship | Internal Noise Level – 45 dB(A) |
| Passive Recreation | External Noise Level – 60 dB(A) |
| Active Recreation | External Noise Level – 65 dB(A) |

It should be noted that the NSW Environmental Protection Authority (NSW EPA) is developing a new construction noise guideline, the *Construction Noise Guideline*, which is currently in-draft. When released, the *Construction Noise Guideline* will replace the ICNG.

### 4.3.2 Sleep disturbance

For projects where night construction (and operations) occur, the potential for noise levels to lead to sleep disturbance should be considered. Section 4.3 of the ICNG discusses the method for assessing and managing sleep disturbance. This guidance references further information in the Road Noise Policy that discusses criteria for the assessment of sleep disturbance.

Refer to section 6.5 which outlines the Out of Hours Work Protocol for assessing noise impacts, and may be required if night works are required.

Where noise levels from a construction (or industrial) source at a residential receptor at night exceeds the following, a maximum noise level event assessment should be undertaken:

- LAeq,15min 40 dB(A) or the RBL + 5 dB(A), whichever is greater, and/or
- LAFMax 52 dB(A) or the RBL +15 dB(A), whichever is greater.

Based on this guidance, Table 4-6 and Table 4-7 present the sleep disturbance screening criterion for the noise catchment areas surrounding the Project.

Table 4-6: $L_{Aeq,15min}$ Sleep disturbance criterion

| Noise Catchment Area | Night RBL ($L_{A90}$ dB(A)) | RBL + 5 dB(A) | Indicative $L_{Aeq,15min}$ Sleep disturbance criterion | Selected $L_{Aeq,15min}$ Sleep disturbance criterion |
|---|---|---|---|---|
| NCA 1 | 36 | 41 | 40 | 41 |
| NCA 2 | 38 | 43 | | 43 |
| NCA 3 | 37 | 42 | | 42 |
| NCA 4 | 30 | 35 | | 40 |
| NCA 5 | 35 | 40 | | 40 |

Table 4-7: $L_{AFMax}$ Sleep disturbance criterion

| Noise Catchment Area | Night RBL ($L_{A90}$ dB(A)) | RBL + 15 dB(A) | Indicative $L_{AFMax}$ Sleep disturbance criterion | Selected $L_{AFMax}$ Sleep disturbance criterion |
|---|---|---|---|---|
| NCA 1 | 36 | 51 | 52 | 52 |
| NCA 2 | 38 | 53 | | 53 |
| NCA 3 | 37 | 52 | | 52 |
| NCA 4 | 30 | 45 | | 52 |
| NCA 5 | 35 | 50 | | 52 |

### 4.3.3 Annoying noise characteristics

Equipment that has the potential to produce a tonal noise, an impulsive noise or any other type of noise defined by the ICNG as 'particularly annoying', the noise level for that particular equipment will receive a + 5 dB(A) penalty.

As per guidance from the Noise Policy for Industry (NPI), the penalty for intermittent noise (e.g. the hammers, packers and compactors) would only be applied during night periods. The penalty for tonal noise (e.g. concrete saws and grinders) will apply for all periods.

### 4.3.4 Construction traffic noise

Road traffic noise impacts due to the construction (and operation) of the Project were assessed against the following guidance from the application notes of the Road Noise Policy:

> *'…for existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level as a result of the development should be limited to 2 dB above that of the noise level without the development. This limit applies wherever the noise level without the development is within 2 dB of, or exceeds, the relevant day or night noise assessment criterion.'*

In reference to the day or night assessment criterion above, the assessment refers to the following criterion provided in the Road Noise Policy (Table 4-8).

Table 4-8: Relevant Road Noise Policy assessment criteria

| Road Category | Type of project/land use | Assessment Criteria – dB(A) | |
|---|---|---|---|
| | | Day (7am – 10pm) | Night (10pm – 7am) |
| Freeway/ arterial/sub-arterial roads | Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments | $L_{Aeq, (15\ hour)}$ 60 dB(A) | $L_{Aeq, (9\ hour)}$ 55 dB(A) |

## 4.4 Construction vibration criteria

### 4.4.1 Human comfort

With respect to human comfort, vibration arising from construction activities must comply with criteria presented in Assessing Vibration: a technical guideline and British Standard 6472-1. DECC, 2006 identifies three different forms of vibration associated with construction activities:

- Continuous: uninterrupted vibration occurring over a defined period
- Impulsive: short-term (typically less than two seconds) bursts of vibration which occurs up to three times over an assessment period
- Intermittent: interrupted periods of continuous or repeated impulsive vibration, or continuous vibration that varies significantly in magnitude.

Continuous vibration may result from steady road traffic or steady use of construction equipment (e.g. generator). Impulsive vibration may arise during the loading or unloading of heavy equipment or materials or infrequent use of hammering equipment. Intermittent vibration may arise from the varied use of construction equipment (i.e. a dump truck moving around a site, idling while being loaded with materials, and then dumping the materials) or repeated high-noise activities such as hammering, piling or cutting.

Preferred and maximum values of human exposure for continuous and impulsive vibrations are listed in Table 4-9 (DECC, 2006), for relevant receivers to this Project. As per DECC, daytime is between 7 am and 10 pm, and night is between 10 pm and 7 am.

Table 4-9: Preferred and maximum weighted Root Mean Square (RMS) values for continuous and impulsive vibration acceleration ($m/s^2$) 1-80 Hertz (Hz)

| Location | Assessment period[1] | Preferred values | | Maximum values | |
|---|---|---|---|---|---|
| | | z-axis[2] | x and y axis[2] | z-axis | x and y axis |
| **Continuous vibration** | | | | | |
| Residences | Day | 0.010 | 0.0071 | 0.020 | 0.014 |
| | Night | 0.007 | 0.005 | 0.014 | 0.010 |
| **Impulsive vibration** | | | | | |
| Residences | Day | 0.30 | 0.21 | 0.60 | 0.42 |
| | Night | 0.10 | 0.071 | 0.20 | 0.14 |

[1] Daytime is 7am to 10pm. Night-time is 10 pm to 7 am

[2] z-axis refers to vertical vibration, while the x and y axes refer to horizontal vibration.

Intermittent vibration is assessed differently using vibration dose values (VDV). Preferred and maximum VDVs for different types of receivers have been reproduced in Table 4-10 for relative receivers in this assessment.

Table 4-10: Preferred and maximum VDVs for intermittent vibration ($m/s^{-1.75}$), (DECC, 2006)

| Location | Day time (7 am to 10 pm) | | Night-time (10 pm to 7 am) | |
|---|---|---|---|---|
| | Preferred VDV | Maximum VDV | Preferred VDV | Maximum VDV |
| Residences | 0.20 | 0.40 | 0.13 | 0.26 |

### 4.4.2 Cosmetic building damage

Section J4.4.3 of *Australian Standard AS2187.2 – 2006 Explosives – Storage and use Part 2: Use of explosives* provides frequency-dependent guide levels for cosmetic damage to structures arising from vibration. These levels are adopted from *British Standard BS7385: 1990 Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from groundborne vibration* [BS7385-2:1993] and are presented in Table 4-11.

Table 4-11: Transient vibration guideline values for cosmetic damage

| Type of building | Peak particle velocity (ppv) mm/s | | |
|---|---|---|---|
| | 4 to 15 Hz | 15 to 40 Hz | 40 Hz and above |
| Reinforced or framed structures industrial and heavy commercial buildings | 50 | | |
| Un-reinforced or light-framed structures residential or light commercial type buildings | 15 to 20 | 20 to 50 | 50 |

### 4.4.3 Heritage item impact

Guidance for more sensitive structures is presented in the German standard, *DIN 4150-3 Vibrations in buildings – Part 3: Effects on structures* (DIN 4150-3: 2016). Vibration velocities not exceeding 3 mm/s at 1 to 10 Hz are recommended in this standard.

### 4.4.4 Buried services

DIN 4150-3:2016 also provides guidance for evaluating the effects of short-term vibration on buried services. This guidance has been reproduced below (Table 4-12).

Table 4-12: DIN 4150-3: 2016 guidance for evaluating effects of short-term vibration on buried services

| Pipe material | Guideline value for velocity measured on the pipe (mm/s) |
|---|---|
| Steel (including welded pipes) | 100 |
| Clay, concrete, reinforced concrete, pre-stressed concrete, metal (with or without flange) | 80 |
| Masonry, plastic | 50 |

# 5. Construction noise and vibration impacts

## 5.1 Summary of construction noise and vibration impacts

### 5.1.1 Construction activities

Multiple noise and vibration producing activities will be undertaken during the construction of the project. These activities can be found in Section 1.2.1.

### 5.1.2 Influencing factors

Factors that may influence the potential noise and vibration impacts from the above activities have been detailed above include:

- The equipment in use, including the numbers of equipment in use and equipment in use simultaneously
- Other works occurring concurrently with the construction of the project
- Topography and screening
- Distances to sensitive receivers
- Background noise
- Hours of construction

## 5.2 Impact assessment

### 5.2.1 Context

As further described in Section 6 of the Revised Noise Impact Assessment in Appendix F of the *Hunter Power Project Response to Submissions Report* (Jacobs, 2021b), noise impacts resulting from the construction of the project have been assessed using noise modelling, while vibration impacts have been assessed through the use of vibration setback distances consistent with guidance from the CNVG.

The following subsections detail the assessment of impacts through these methods. It should be noted that the construction scheduling and equipment usage was based on what was accurate during the EIS stage and may be superseded by the time construction activities have been finalised.

### 5.2.2 Construction staging and plant

#### 5.2.2.1 Noise

Sound power levels were estimated for certain main phases of construction for the Project as outlined in the EIS. Sound power levels for each construction phase were determined by developing an inventory of noise producing equipment and the estimated numbers of equipment based on the works taking place and estimating the sound power levels of each piece of equipment using sound power levels presented in national and international standards and guidelines, as well as from a Jacobs measurement database.

The indicative construction phases from the EIS for the Project works are linked to the construction stages within the CEMS, and presented in Table 5-1.

Table 5-1: Construction phase Sound Power Levels

| EIS Phase Reference | Construction Stage | Construction Activity | Location | Equipment | Number of Equipment | Individual Equipment SWL | Phase SWL |
|---|---|---|---|---|---|---|---|
| 1 | Pre-construction and site establishment<br><br>Construction | Site earthworks | Whole Site | Excavator 5-20t | 1 | 99 | 117 |
| | | | | Dozer | 1 | 116 | |
| | | | | Grader | 1 | 108 | |
| | | | | Delivery Truck | 1 | 100 | |
| | | | | Generator | 1 | 101 | |
| | | | | Roller | 1 | 104 | |
| | | | | Water Cart | 1 | 95 | |
| | | | | Cars | 1 | 95 | |
| 2 | Site establishment<br><br>Construction | Pile foundations | Power islands | Franna | 1 | 99 | 117 |
| | | | | Piling Rig (Driven)* | 1 | 116 | |
| | | | | Hand Tools | 1 | 94 | |
| | | | | Concrete Truck | 1 | 109 | |
| | | | | Delivery Truck | 1 | 100 | |
| | | | | Generator | 1 | 101 | |
| | | | | Cars | 1 | 95 | |
| 3 | Site establishment<br><br>Construction | Under-ground services | From power islands to gas receiving station, demineralised water plant, fuel oil storage tanks, stormwater basin and control building | Excavator 5-20t | 1 | 99 | 119 |
| | | | | Concrete Saw** | 1 | 118 | |
| | | | | Roller | 1 | 104 | |
| | | | | Vacuum Truck | 1 | 109 | |
| | | | | Hand Tools | 1 | 94 | |
| | | | | Delivery Truck | 1 | 100 | |
| | | | | Generator | 1 | 101 | |
| | | | | Cars | 1 | 95 | |

| EIS Phase Reference | Construction Stage | Construction Activity | Location | Equipment | Number of Equipment | Individual Equipment SWL | Phase SWL |
|---|---|---|---|---|---|---|---|
| 4 | Construction | Balance of plant (BoP) | Closed Cycle heat exchangers, Demineralised Water Tanks, Potable Water Tanks, Fuel Oil Storage Tanks, Buildings | Franna | 1 | 99 | 111 |
| | | | | Excavator 5-20t | 1 | 99 | |
| | | | | Hand Tools | 1 | 94 | |
| | | | | Concrete Truck | 1 | 109 | |
| | | | | Delivery Truck | 1 | 100 | |
| | | | | Generator | 1 | 101 | |
| | | | | Cars | 1 | 95 | |
| 5 | Construction | Switchyard – Electrical | Switchyard | Power Hand Tools | 1 | 96 | 106 |
| | | | | Welder | 1 | 97 | |
| | | | | Generator | 1 | 101 | |
| | | | | Franna | 1 | 99 | |
| | | | | Delivery Truck | 1 | 100 | |
| | | | | Cars | 1 | 95 | |
| 6 | Construction | Primary installation of gas turbine and generator | Power Islands | Power Hand Tools | 1 | 96 | 106 |
| | | | | Welder | 1 | 97 | |
| | | | | Generator | 1 | 101 | |
| | | | | Franna | 1 | 99 | |
| | | | | Delivery Truck | 1 | 100 | |
| | | | | Cars | 1 | 95 | |

| EIS Phase Reference | Construction Stage | Construction Activity | Location | Equipment | Number of Equipment | Individual Equipment SWL | Phase SWL |
|---|---|---|---|---|---|---|---|
| 7 | Construction | HV electrical installation | GT Transformers | Power Hand Tools | 1 | 96 | 108 |
| | | | | Excavator 5-20t | 1 | 99 | |
| | | | | Generator | 1 | 101 | |
| | | | | Roller | 1 | 104 | |
| | | | | Delivery Truck | 1 | 100 | |
| | | | | Cars | 1 | 95 | |
| 8 | Construction<br><br>Post construction/de mobilisation | Site Surfacing | Whole Site | Paving Machine | 1 | 104 | 119 |
| | | | | Concrete Truck | 1 | 109 | |
| | | | | Roller | 1 | 104 | |
| | | | | Excavator 5-20t | 1 | 99 | |
| | | | | Generator | 1 | 101 | |
| | | | | Grader | 1 | 108 | |
| | | | | Concrete Saw** | 1 | 118 | |
| | | | | Delivery Truck | 1 | 100 | |
| | | | | Cars | 1 | 95 | |

* - Receives a 5 dB(A) penalty for intermittent noise when works take place during night periods. As the works will not take place at night, no penalty was applied.

** - Receives a 5 dB(A) penalty for tonal noise. The time correction applied to the saw and grinder (typically 5 minutes out of a 15-minute period) and the penalty have both been considered when calculating the equipment noise level..

SWL is the Sound Power Level, the total sound energy emitted by the noise source, measured in dB(A)

#### 5.2.2.2 Vibration

Vibration producing equipment have been identified from the construction staging. The vibration producing equipment along with the associated setback distances have been detailed in Table 5-2. Other equipment that may also be used are also displayed.

Table 5-2: Construction phase vibration setbacks

| EIS Reference Phase | Equipment | Cosmetic damage (Ref: BS7385-2: 1993) | Human response (Ref: DECC, 2006) | Heritage Structure Impact (Ref: DIN 4150-3, 2016) |
|---|---|---|---|---|
| 1, 7, 8 | Roller | 25m | 100m | 45m |
| 2 | Piling Rig (Driven) | 15m | 50m | 27m |
| Potential Usage | Hydraulic Hammer | 22m | 73m | 40m |
| Potential Usage | Piling Rig (Bored) | 2m | 4m | 3.75m |
| Potential Usage | Jackhammer | 1m | 2m | 1.75m |

### 5.2.3 Predicted construction noise impact

Estimated noise levels at the nearest receivers were predicted from the anticipated noise levels generated during each construction phase of the Project. Table 5-3 presents the predicted noise impact at each representative residential receiver during each construction phase, while Table 5-4 presents the predicted noise impact at each non-residential receiver during each construction phase.

There is the potential for out of hours work (OOHW) to be required, however, it is not known at this time (being prior to commencement of construction) if OOHW is required or not. The protocol for varying hours is set out in section 6.5, condition of approval B32, and the Environment Protection Licence (refer Appendix 2) for the project.

While it is not yet known if OOHW is required or not for OSOM deliveries, when unloading of OSOM deliveries occur outside of hours, the protocol in section 6.5 will be followed. If scheduling and site constraints permit, the deliveries might occur on one night with unloading the following day and return OSOM movement on a following night. In this instance the need to follow the OOHW protocol is not required. Determining this is dependent upon the logistics of the main equipment suppliers and the Principal Contractor responsible for managing the site. It is noted that the movement of OSOM vehicles on public roads will be directed by the NHVR, however, once the deliveries reach the construction site, they are no longer considered under Condition B31 of the Infrastructure Approval.

The assessment assumed all plant and equipment for each activity was operated concurrently while positioned at the location closest to each individual receiver. This was a conservative approach and while this may provide for the determination of conservative noise levels, actual construction noise levels should be lower than predicted in this assessment.

As Table 5-3 shows, during phase 1, noise levels were predicted to be above the standard hours NML of the NCA 2's nearest receiver by 1 dB(A), as well as the out of hours day NMLs at NCA 2's and NCA 3's nearest receivers by up to 6 dB(A) and 2 dB(A), respectively. Construction noise levels were also predicted to be above the NMLs at NCA 2's nearest receiver during phases 3 and 8.

The construction phases which were predicted to result in the highest noise levels at the nearest sensitive receiver are the initial site earthworks and surfacing works (i.e. Phases 1 and 8). These works would result in noise levels of 51 dB(A) and 49 dB(A) at the nearest residential receiver, respectively.

As listed in Table 5-4, noise levels were not predicted to be above NMLs at any non-residential receivers in each of the NCAs.

Table 5-3: Predicted noise impacts from construction works at residential receivers

| EIS Ref Phase | NCA 1 | | | NCA 2 | | | NCA 3 | | | NCA 4 | | | NCA 5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Highest Predicted Noise Level at NCA 1 Representative Residential Receiver (dB(A)) | Noise Level Below NML? | | Highest Predicted Noise Level at NCA 2 Representative Residential Receiver (dB(A)) | Noise Level Below NML? | | Highest Predicted Noise Level at NCA 3 Representative Residential Receiver (dB(A)) | Noise Level Below NML? | | Highest Predicted Noise Level at NCA 4 Representative Residential Receiver (dB(A)) | Noise Level Below NML? | | Highest Predicted Noise Level at NCA 5 Representative Residential Receiver (dB(A)) | Noise Level Below NML? | |
| | | Standard Hours – 55 dB(A) | Out of Hours, Day – 50 dB(A) | | Standard Hours – 50 dB(A) | Out of Hours, Day – 45 dB(A) | | Standard Hours – 48 dB(A) | Out of Hours, Day – 43 dB(A) | | Standard Hours – 45 dB(A) | Out of Hours, Day – 40 dB(A) | | Standard Hours – 47 dB(A) | Out of Hours, Day – 42 dB(A) |
| 1 | 47 | Yes | Yes | 51 | No, by 1 dB(A) | No, by 6 dB(A) | 45 | Yes | No, by 2 dB(A) | 32 | Yes | Yes | 41 | Yes | Yes |
| 2 | 42 | Yes | Yes | 45 | Yes | Yes | 40 | Yes | Yes | <30 | Yes | Yes | 36 | Yes | Yes |
| 3 | 45 | Yes | Yes | 48 | Yes | No, by 3 dB(A) | 43 | Yes | Yes | 31 | Yes | Yes | 39 | Yes | Yes |
| 4 | 36 | Yes | Yes | 40 | Yes | Yes | 35 | Yes | Yes | <30 | Yes | Yes | 30 | Yes | Yes |
| 5 | 30 | Yes | Yes | 34 | Yes | Yes | 30 | Yes | Yes | <30 | Yes | Yes | <30 | Yes | Yes |
| 6 | 31 | Yes | Yes | 35 | Yes | Yes | <30 | Yes | Yes | <30 | Yes | Yes | <30 | Yes | Yes |
| 7 | 33 | Yes | Yes | 36 | Yes | Yes | 31 | Yes | Yes | <30 | Yes | Yes | <30 | Yes | Yes |
| 8 | 45 | Yes | Yes | 49 | Yes | No, by 4 dB(A) | 43 | Yes | Yes | 30 | Yes | Yes | 39 | Yes | Yes |

Table 5-4: Noise impacts from construction works at non-residential receivers

| EIS Reference Phase | NCA 2* | | NCA 3* | | | |
|---|---|---|---|---|---|---|
| | Highest Predicted Noise Level at NCA 2 Industrial Receiver (dB(A)) | Noise Level Below NML? Industrial – 75 dB(A) | Highest Predicted Noise Level at NCA 3 Commercial Receiver (dB(A)) | Noise Level Below NML? Commercial – 70 dB(A) | Highest Predicted Noise Level at NCA 3 Educational Receiver (dB(A)) | Noise Level Below NML? Educational – 55 dB(A) |
| 1 | 51 | Yes | 45 | Yes | 42 | Yes |
| 2 | 45 | Yes | 40 | Yes | 38 | Yes |
| 3 | 48 | Yes | 43 | Yes | 40 | Yes |
| 4 | 40 | Yes | 35 | Yes | 32 | Yes |
| 5 | 34 | Yes | 30 | Yes | 27 | Yes |
| 6 | 34 | Yes | 29 | Yes | 26 | Yes |
| 7 | 36 | Yes | 31 | Yes | 29 | Yes |
| 8 | 49 | Yes | 43 | Yes | 40 | Yes |

* There were no non-residential receivers identified in NCA 1, NCA 4 and NCA 5

The current schedule for the construction of the Project means that the Project will be constructed prior to the occupation of any of the adjacent industrial lots. Hence, impacts at these lots have not been considered during the assessment. However, if the construction of the Project is delayed, these lots may be occupied, and hence impacts may occur. As such, the potential noise impacts at the boundary of the Project Site have been assessed in the following subsections.

During construction, the highest predicted noise along the Project Site boundary is equal to but not above the Noise Management Level for industrial receivers. Additionally, several construction phases nearly reach the NML. Phases one and three reach the NML, while phases four and eight are within 1-2 dB(A) of the NML. The noise levels in comparison to the criteria during each construction phase are detailed in Table 5-5.

Table 5-5: Construction predicted noise impacts at the Project Site boundary

| EIS Reference Phase | Industrial Lot | |
|---|---|---|
| | Highest Predicted Noise Level at the Boundary (dB(A)) | Compliant with Noise Criteria? |
| | | Industrial – 75 dB(A) |
| 1 | 75 | Yes |
| 2 | 66 | Yes |
| 3 | 75 | Yes |
| 4 | 74 | Yes |
| 5 | 70 | Yes |
| 6 | 54 | Yes |
| 7 | 57 | Yes |
| 8 | 73 | Yes |

### 5.2.4 Construction traffic noise impact

During construction of the Project, the estimated peak vehicle movements per day at the peak of construction is expected to be 400 light vehicle movements, along with 120 heavy vehicle movements during standard hours daily, along with two oversize over mass movements during the night (one inbound trip and one outbound trip).

Considering the estimate of construction vehicle movements per day using the Construction Noise Estimator (RMS, 2016) it was determined that noise from the existing road traffic plus the additional construction noise traffic would be 63 dB(A) during the day and 61.2 dB(A) during the night. While these levels are above the day and night traffic noise criteria, the additional construction noise traffic associated with the Project would only contribute 0.2 dB(A) to the overall traffic noise level during the day and would contribute less than 0.1 dB(A) to the traffic noise level during the night. Therefore, the 2 dB(A) traffic noise increase criterion would not be exceeded, and it was concluded that the noise generated from the additional traffic during construction of the Project would not present a noise impact issue.

With regards to OSOM deliveries at night, the condition of approval B31(b) provides for the, “delivery of materials required by the police or other authorities for safety reasons.” It is very likely the National Heavy Vehicle Regulator (NHVR) will require OSOM deliveries to be conducted at night in order to manage the safety of the public road network and road users. As a matter of good practice, a Construction and Noise Vibration Impact Statement (CNVIS) will be prepared for OSOM transport. Refer to section 5.2.3 above regarding OSOM deliveries, unloading, and how the Out of Hours Work protocol will be addressed.

### 5.2.5 Sleep disturbance impact

Construction is not predicted to take place during the night, and as such construction activities associated with the Project would not result in sleep disturbance impacts.

### 5.2.6 Predicted cumulative noise impact

Remediation of the former Kurri Kurri aluminium smelter land adjacent the Project Site is estimated to be ongoing to late 2023 and therefore concurrent with the construction of the Project. Details of the adjacent works is described in more detail in Section 6.8.3 of the Revised Noise Impact Assessment in Appendix F of the *Hunter Power Project Response to Submissions Report* (Jacobs, 2021b).

The predicted cumulative impacts associated with the works undertaken during Phase 1 along with the concurrent Hydro Aluminium Demolition and Remediation activities has been detailed in Table 5-6 for residential receivers, and Table 5-7 for non-residential receivers. As shown in the table, cumulative impacts may result in an increase in construction noise levels at the nearest receivers. Construction noise levels at the nearest receivers at NCA 3 and NCA 4 (the receivers nearest to the demolition works) increase by approximately 6 dB(A), resulting in noise levels above the standard hours NML at NCA 3. The cumulative works also increase construction noise levels at NCA 2's nearest receiver by 3 dB(A), and at NCA 1 and NCA 5 by 1 dB(A) each. Cumulative noise has not been predicted to be above the NMLs of any non-residential receivers.

Table 5-6: Cumulative predicted construction noise impact on residential receivers

| EIS Reference Phase | NCA 1 | | | NCA 2 | | | NCA 3 | | | NCA 4 | | | NCA 5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Highest Predicted Noise Level at NCA 1 Representative Residential Receiver (dB(A)) | Noise Level Below NML? | | Highest Predicted Noise Level at NCA 2 Representative Residential Receiver (dB(A)) | Noise Level Below NML? | | Highest Predicted Noise Level at NCA 3 Representative Residential Receiver (dB(A)) | Noise Level Below NML? | | Highest Predicted Noise Level at NCA 4 Representative Residential Receiver (dB(A)) | Noise Level Below NML? | | Highest Predicted Noise Level at NCA 5 Representative Residential Receiver (dB(A)) | Noise Level Below NML? | |
| | | Standard Hours – 55 dB(A) | Out of Hours, Day – 50 dB(A) | | Standard Hours – 50 dB(A) | Out of Hours, Day – 45 dB(A) | | Standard Hours – 48 dB(A) | Out of Hours, Day – 43 dB(A) | | Standard Hours – 45 dB(A) | Out of Hours, Day – 40 dB(A) | | Standard Hours – 47 dB(A) | Out of Hours, Day – 42 dB(A) |
| Phase 1 | 47 | Yes | Yes | 51 | No, by 1 dB(A) | No, by 6 dB(A) | 45 | Yes | No, by 2 dB(A) | 32 | Yes | Yes | 41 | Yes | Yes |
| Phase 1 with Hydro Aluminium Works | 48 | Yes | Yes | 54 | No, by 4 dB(A) | No, by 9 dB(A) | 51 | No, by 3 dB(A) | No, by 8 dB(A) | 37 | Yes | Yes | 42 | Yes | Yes |

Table 5-7: Cumulative construction noise impact on non-residential receivers

| EIS Reference Phase | NCA 2[1] | | NCA 3* | | | |
|---|---|---|---|---|---|---|
| | Highest Predicted Noise Level at NCA 2 Industrial Receiver (dB(A)) | Noise Level Below NML? | Highest Predicted Noise Level at NCA 3 Commercial Receiver (dB(A)) | Noise Level Below NML? | Highest Predicted Noise Level at NCA 3 Educational Receiver (dB(A)) | Noise Level Below NML? |
| | | Industrial – 75 dB(A) | | Commercial – 70 dB(A) | | Educational – 55 dB(A) |
| Phase 1 | 51 | Yes | 45 | Yes | 42 | Yes |
| Phase 1 with Hydro Aluminium Works | 54 | Yes | 51 | Yes | 47 | Yes |

### 5.2.7 Predicted construction vibration impact

As identified in Section 5.2.2, vibratory rollers and piling rigs, which are a vibration-generating plant, would be used during construction. The equipment, setback distances and nearest impacted receivers are displayed in Table 5-8.

Table 5-8: Predicted vibration impact

| Equipment | Setback Distance (m) | | | Nearest Affected Receiver (m) | | | Vibration Impact? |
|---|---|---|---|---|---|---|---|
| | Human Comfort | Cosmetic Building Damage | Heritage Structure Impact | Residency | Occupancy | Heritage Item | |
| Vibratory Roller | 100m | 25m | 45m | 1.15km | 1.15km | 1.3km | No |
| Air Track Drill | 50m | 15m | 27m | | | | No |

As displayed in the table, no vibration impacts at nearest receivers have been predicted as a result of the construction of the Project. Additionally, as the nearest medical facility is 3.3 km away from the Project Site, no impacts to medical facilities due to construction vibration have been predicted.

# 6. Mitigation and management measures

Mitigation measures to address predicted noise and vibration impacts will be implemented to address the impacts predicted in Section 5. The specific mitigation measures to address the Infrastructure Approval conditions and EIS Environmental Mitigation Measures are detailed in Sections 6.1 to 6.3.

## 6.1 Standard noise mitigation measures

To reduce construction noise levels to below the respective NMLs, standard mitigation measures from Section 7 of the Revised Noise Impact Assessment in Appendix G of the *Hunter Power Project Response to Submissions Report* (Jacobs, 2021b) will be implemented. These have been derived from the standard mitigation measures contained within the ICNG (DECC, 2009) and *Construction Noise and Vibration Guidelines* (RMS, 2016). These are displayed in Table 6-1.

Table 6-1: Standard measures, noise during construction.

| Mitigation measure | Details | Timing | Responsibility |
|---|---|---|---|
| NVIA1 | Wherever possible and safe, limit works to standard hours of construction. | During construction | Principal Contractor |
| NVIA2 | Select low-noise plant and equipment. Ensure equipment mufflers operate in a proper and efficient manner.<br>All plant and equipment used on site, or in connection with the development, is operated in a proper and efficient manner | Prior to and during construction | Principal Contractor |
| NVIA3 | Where possible, use quieter and less vibration emitting construction methods. | During construction | Principal Contractor |
| NVIA4 | Only have necessary equipment on-site and turn off when not in use. | During construction | Principal Contractor |
| NVIA5 | Where possible, concentrate noisy activities at one location and move to another as quickly as possible. | During construction | Principal Contractor |
| NVIA6 | Vehicle movements, including deliveries outside standard hours, should be minimised and avoided where possible. | During construction | Principal Contractor |
| NVIA7 | All plant and equipment is to be well maintained and where possible, fitted with silencing devices. | Prior to and during construction | Principal Contractor |
| NVIA8 | Use only the necessary size and powered equipment for tasks. | During construction | Principal Contractor |
| NVIA9 | Implement training to induct staff on noise sensitivities | Prior to and during construction | Principal Contractor |
| NVIA10 | Where possible, consider the application of less intrusive alternatives to reverse beepers such as 'squawker' or 'broadband' alarms. | During construction | Principal Contractor |
| NVIA11 | Consider the installation of temporary construction noise barriers or earth mounds for concentrated, noise-intensive activities. | During construction | Principal Contractor |

| Mitigation measure | Details | Timing | Responsibility |
|---|---|---|---|
| NVIA12 | Where practicable, install enclosures around noisy mobile and stationary equipment as necessary. | During construction | Principal Contractor |
| NVIA13 | Where possible, avoid simultaneous operation of two or more noisy plant close to receivers.<br>The offset distance between noisy plant and sensitive receivers should be maximised. | During construction | Principal Contractor |
| NVIA14 | Plan traffic flow, parking and loading/unloading areas to minimise reversing movements. | Prior to and during construction | Principal Contractor |
| NVIA15 | Complete routine monitoring to evaluate construction noise levels and evaluate whether the mitigation measures in place are adequate or require revision. | During construction | Principal Contractor |
| NVIA 16 | Prior to the commencement of the installation of the gas turbines, unless otherwise agreed by the Secretary, the Proponent must ensure there is a suitable meteorological weather station operating located on the premises or at a location approved by the EPA<br>The weather station will be capable of monitoring in accordance with the Environment Protection Licence requirements.<br>The monitoring capability is in accordance with the EPL, which accounts for the Noise Policy for Industry, and is summarised in the Construction Monitoring Program required by condition C1 and appended to the CEMS | Prior to the commencement of the installation of the gas turbines and throughout construction | Principal Contractor |
| NVIA 17 | The siting of the weather station will be such that the measurements are representative of the conditions at the power station and surrounding area, and that nearby infrastructure does not affect those measurements. | Prior to the commencement of the installation of the gas turbines and throughout construction | Snowy Hydro |

## 6.2 Standard vibration mitigation measures

*Assessing Vibration: a technical guideline*, (DECC, 2006) provides general guidance for limiting vibration impacts during construction. These have again been reviewed and the relevant recommendations have been summarised in Table 6-2 below. If vibration is a concern during the construction of the project, these measures should be implemented.

Table 6-2: Vibration management measures from DECC, 2006

| Control measure | Details | Timing | Responsibility |
|---|---|---|---|
| Controlling vibration | Choosing alternative, lower-impact equipment or methods wherever possible | During construction | Principal Contractor |

| Control measure | Details | Timing | Responsibility |
|---|---|---|---|
| levels from the source | Scheduling the use of vibration-causing equipment at the least sensitive times of the day (wherever possible) | Prior to and during construction | Principal Contractor |
| | Locating high vibration sources as far away from sensitive receiver areas as possible | During construction | Principal Contractor |
| | Sequencing operations so that vibration-causing activities do not occur simultaneously. | During construction | Principal Contractor |
| | Keeping equipment well maintained | During construction | Principal Contractor |
| | Do not conduct vibration intensive works within the recommended safe setback distances. | During construction | Principal Contractor |
| Consultation | Informing nearby receivers about the nature of construction phases and the vibration-generating activities. | During construction | Principal Contractor, Snowy Hydro Environmental Advisor |

## 6.3 Cumulative impacts

Noise from construction works may occur concurrently with the remediation of the Kurri Kurri Aluminium Smelter, which may result in a cumulative noise impact. Measures in Table 6-3 have been provided to address the potential for cumulative noise impacts.

Table 6-3: Cumulative noise management measures

| Control measure | Details | Timing | Responsibility |
|---|---|---|---|
| Scheduling Works | Where possible, scheduling works to occur at different times of the day to prevent multiple noisy activities from taking place at the same time | During construction | Principal Contractor |
| | Where possible, scheduling works to take place at different locations on site to prevent noisy activities from taking place near one another which will limit the amplification of the noise. | Prior to and during construction | Principal Contractor |
| Consultation | Discuss works schedules and timings with the proponents of other works in the industrial estate to gain an understanding of when noisy work surrounding the Project will take place. Should respectively project schedules and work priorities change, proponents should commit to regular meetings to ensure all proponents are aware of the changes. | During construction | Principal Contractor Snowy Hydro |

## 6.4 Construction Noise and Vibration Impact Statements

As detailed in Section 5.2.1, there is a possibility that the works program to be undertaken deviates from the works detailed in the EIS, Response to Submissions and NVMP. Where works are expected to result in a greater noise impact than those in the predicted in the NVMP, a Construction Noise and Vibration Impact Statement (CNVIS) should be undertaken.

The Principal Contractor will be responsible for advising of the works program that do not align with the EIS, and developing CNVIS as identified here for each stage of the work. Each CNVIS will be reviewed by the Environment Representative for the project.

CNVISs will be employed to inform and direct noise and vibration management for the works undertaken as part of the project. The CNVIS will be progressively produced to inform all noise and vibration risks associated with each work stage and provide applicable management measures to be undertaken. Any works which a CNVIS identifies as producing noise and/or vibration impacts above the limits in Section 4 must be managed in accordance with the NVMP.

Each CNVIS should:

- Detail the scope of works covered by the CNVIS
- Detail the nearest noise and vibration sensitive receivers
- Provide justification for any Out of Hours Work (OOHW), if required
- Provide the noise and vibration objectives and criteria
- Detail the predicted noise and vibration impacts
- Provide appropriate noise and vibration management measures and monitoring requirements.

## 6.5 Out of Hours Work (OOHW) protocol

For all works to be undertaken outside the standard construction hours or those listed in condition B31, an OOHW Protocol will apply. The details of the protocol are detailed below.

Any request to alter the hours of construction will be considered on a case-by-case or activity-specific basis.

### 6.5.1 Justification for OOHW

All proposed OOHW, outside of those listed in condition 31, require a full justification as why the works are required to be undertaken outside standard construction hours. There are several reasons why works can only be undertaken out of hours and these include, but are not limited to:

- Ensuring the safety of construction personnel
- Ensuring public safety
- Minimising disruption to road network users/ pedestrian during deliveries.

### 6.5.2 Construction Noise and Vibration Impact Statements

Prior to the undertaking of any works during OOHW periods, outside of those covered in condition B31, a CNVIS will be developed for to determine the potential noise and vibration impacts posed by those works. As part of the noise and vibration assessment process, the following outcomes must be developed:

- The identification of any noise and vibration impacts on nearby sensitive receivers as a result of those out of hours works
- The predicted noise and vibration levels at the impacted receivers, including the amount by which the noise and vibration levels are above the appropriate noise management level or vibration limit
- The identification of feasible and reasonable mitigation and management measures to address the predicted noise and vibration impacts
- The identification of appropriate noise and vibration monitoring locations to aid in managing the noise and vibration impacts while the works are being undertaken.

### 6.5.3 OOHW documentation

Prior to undertaking OOHW activities, an OOHW Application Form will be developed for submission to the NSW EPA, requesting the required hours for works to be undertaken. Alongside the OOHW Application Form, the above CNVIS will also be provided to detail the activities undertaken and impacts predicted. Variations to construction hours will also require the prior written approval of the Secretary.

### 6.5.4 OOHW community notifications

Notification to relevant impacted receivers will be provided between 5 and 14 days prior to OOHW taking place.

Additional community notification will be undertaken where directed by the NSW EPA including:

- Letterbox drop and/ or email
- Phone calls
- Individual briefings.

Written evidence will be provided in an OOHW application showing consultation with potentially affected sensitive receivers. In the management and preparation of an application it is important to consider the timeframe for notification of potentially impacted receivers.

It is also a requirement to consult with the appropriate Council and other relevant agencies.

### 6.5.5 NSW EPA review of OOHW

Where the OOHW Application has been reviewed and approved, any specific conditions that relate to the OOHW are to be:

- Actioned for implementation (such as any additional notification to the community)
- Tool-boxed to relevant workforce and site personnel before each shift to introduce / reinforce works restrictions, management measures and expected workforce behaviour

- Implemented during works with accountability for the implementation of any conditions to be taken by the Principal Contractor.

### 6.5.6 Variations to construction hours will also require the prior written approval of the Secretary.OOHW monitoring

Attended noise and vibration monitoring is to be undertaken, at representative stages of the activity or work, to verify that noise levels resulting from OOHW are in accordance with the outcomes of the OOHW CNVIS. Noise and vibration monitoring should follow the procedures outlined in this NVMP.

# 7. Compliance management

## 7.1 Training

All staff and contractors working on the construction of the Project will undergo education and training regarding noise and vibration impacts and management. Training would include:

- Toolbox talks
- Work inductions
- Meetings between contractors and environmental staff
- Posters and Educational Items.

Training should detail:

- The contents of this NVMP
- Legislation pertaining to noise and vibration impact and management
- Construction hours
- Nearby noise sensitive locations
- Complaint and Enquiry reporting
- Management measures listed in this NVMP
- Specific responsibilities regarding the mitigation measures.

## 7.2 Monitoring

Noise and vibration monitoring will be undertaken. The results of monitoring will be compared against the predicted noise impacts. Where monitoring has found noise and vibration impacts to be above the relevant criteria, the following actions would be undertaken:

- Stoppage of work that has been identified as the cause of the criteria exceedance
- Determine if any non-project noise sources may be causing the criteria exceedance
- Determine if a particular piece of equipment is the cause of the criteria exceedance, and if any options exist to mitigate or replace the equipment
- Adopt any other mitigation or management measures where feasible and reasonable to reduce noise
- Review the work practices undertaken against the NVMP
- Adopt any lessons learnt into future modelling, mitigation actions and training.

### 7.2.1 Noise monitoring

Both attended and unattended noise monitoring may be undertaken during the construction of the Project. Whether attended or unattended monitoring is required will be determined on a case-by-case basis. This will depend on the nature of the activity and level of verification required by the monitoring. For example, unattended monitoring might be considered appropriate to verify a noise level from a change in construction activity occurring over multiple days, whereas attended noise monitoring might be considered appropriate to verify a complaint or noise level in a particular circumstance where the time of the noise occurring is known.

Noise monitoring will be undertaken in the following situations:

- At the commencement of activities where it has been identified that verification monitoring is required, such as confirming that noise levels are consistent with those predicted and to confirm the effectiveness of mitigation

- In response to a complaint received regarding construction noise (where determined appropriate)
- Where there is a change in methodology that may result in an increase in noise levels
- As directed by the NSW EPA
- In accordance with the Environment Protection Licence (refer Appendix 2)
- As required by a CNVIS
- As required by an OOHW Protocol
- Ongoing, case-by-case spot checks for noise intensive plant and equipment will be undertaken throughout construction to ensure compliance with the noise levels.

Locations for noise monitoring will be determined on a case-by-case basis, in response to complaints and/or the locations of predicted noise impacts. Likewise, the duration and amount of noise monitoring will ultimately be dependent on the scale of the construction activities and extent of expected noise impacts. Noise monitoring will cover a representative period of the construction activity, wherein the plant and equipment operating is consistent with the full range of plant and equipment modelled in the noise assessment (i.e. the monitoring will not be undertaken when key noise producing equipment is not in operation). Where possible, monitoring will be undertaken at the most affected noise sensitive receiver. Noise monitoring locations factors include:

- Proximity of the receiver to the works
- Noise sensitivity of the receiver
- Location of previous monitoring
- Expected duration of the impact
- Background noise levels
- Safety of personnel undertaking the measurements.

Noise monitoring results will be made publicly available on the Snowy Hydro Internet site.

- For attended noise monitoring results will be published 10 business days after the noise monitoring has been conducted and the results verified as valid with respect to background noise interference to construction noise contributions at the monitoring location.
- For monitoring that is conducted using data logging, results will be published 10 business days after the logging results have been downloaded and the results verified as valid with respect to background noise interference to construction noise contributions at the monitoring location.

#### 7.2.1.1 Out of Hours Protocol Noise Monitoring

As per the OOHW Protocol detailed in Section 6.5 and the CNVIS requirement in Section 6.4, noise monitoring must be performed where required by the OOHW CNVIS and/or OOHW permit provided by the NSW EPA in order to validate the predicted OOHW noise levels. As per the OOHW protocol, noise monitoring will be required where noise at a receiver is predicted to receive noise levels greater than 5 dB(A) over the NMLs during the night.

Refer to section 2.4 of the Construction Monitoring Program for further detail on noise monitoring.

#### 7.2.1.2 Noise monitoring parameters

All noise measurements will be undertaken to the following parameters:

- Sample Period: 15 minutes
- Frequency Weighting: A-Weighting
- Time Constant: Fast (125 milliseconds).

Attended noise monitoring will be undertaken in 15-minute sampling intervals, and continued if logging or repeated if attended, until representative noise data showing the noise contribution being targeted is obtained in accordance with the NSW Noise Policy for Industry. Or until it is demonstrated that the noise contribution being targeted cannot be shown from prevailing background noise.

Unattended noise monitoring will be performed to record at 15-minute sampling intervals.

As a minimum, $L_{Aeq}$, $L_{AMax}$, and $L_{A90}$ A-weighted noise levels should be recorded.

#### 7.2.1.3 Quality assurance

All monitoring will be undertaken by suitably trained and competent personnel, who are experienced in undertaking noise measurements.

Noise monitoring equipment used will be at least Type 2 instruments and calibrated in accordance with manufacturer specifications and/or relevant Australian Standards. Records of equipment laboratory calibration will be maintained by Snowy Hydro Limited (Snowy Hydro) and the Principal Contractor throughout the delivery of the Project. The calibration of the monitoring equipment will be checked in the field before and after the noise measurement period.

Noise measures while winds are greater than 5 m/s or while rainfall is present should be discarded, in line with the monitoring requirements of the *Noise Policy for Industry* (EPA, 2017).

Noise monitoring will be undertaken and recorded in accordance with the relevant noise measurement requirements in the reference standards and documents in Section 3.1. All monitoring records will be retained throughout the delivery of the Project by Snowy Hydro. Noise monitoring records will be completed to record:

- Name of person undertaking the measurement,
- Date and time of measurement, length of measurement and any measurement time intervals,
- Type and model number of monitoring instrumentation,
- Results of field calibration checks,
- Measurement location details and number of measurements at each location,
- Weather conditions during measurements,
- Operation and activities of the noise sources under investigation,
- Estimated contribution of the Project's activities, and
- Noise due to other extraneous and environmental sources (e.g. traffic, aircraft, trains, dogs barking, insects).

## 7.3 Incidents and complaints

Complaints and enquiries will be managed in accordance with the process outlined in Section 6.3 of the CEMS. Incidents will be reported in accordance with the process outlined in Section 7.4 of the CEMS.

Audits will be undertaken to assess the effectiveness of environmental management measures and compliance with the NVMP and all regulatory requirements. The auditing procedure are be detailed in the CEMS.

## 7.4 Incident notification

The Principal Contractor will notify Snowy Hydro upon becoming aware of an incident, and Snowy Hydro will then notify the Secretary in writing via the Major Projects website immediately.

The key aspects the notification will address are:

(a) the development and application number (12590060);

(b) details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);

(c) how the incident was detected;

(d) when the Proponent became aware of the incident;

(e) any actual or potential non-compliance with conditions of approval;

(f) what immediate steps were taken in relation to the incident;

(g) further action(s) that will be taken in relation to the incident; and

(h) a development contact for further communication regarding the incident. Unless otherwise stated in the incident notification, this is the Snowy Hydro Approvals Manager on 0409 840 165.

## 7.5 Non-compliance notification

In the instance of a non-compliance, the Secretary will be notified in writing via the Major Projects website within seven days after the Proponent becomes aware of any non-compliance. Snowy Hydro will lodge the notification.

The Principal Contractor must notify Snowy Hydro whenever it is aware of a non-compliance.

The key aspects a non-compliance notification will address are:

(a) the development and application number (12590060);

(b) the condition of approval that the development is non-compliant with;

(c) the way in which the development does not comply;

(d) the reasons for the non-compliance (if known); and

(e) the corrective and preventative actions undertaken to address the non-compliance.

For clarity, a non-compliance which has already been notified as an incident does not need to also be notified as a noncompliance to the Major Projects website.

## 7.6 Complaints and enquiry management

An enquiry is defined as a question or request for information.

A complaint is defined as a statement that describes Project related activities as unsatisfactory or unacceptable. Complaints may also be accompanied by threats to contact the media, local MP, or some other authority.

Complaints and enquiries may be received by any method. The CRM will acknowledge and respond to enquiries and complaints about the Project, as per the process and timeframes shown in the table below. Where the complaint rises to the level of a dispute it shall be manged in accordance with the steps outlined in section 6.3 in the Construction Environmental Management Strategy.

Table 5-1: Complaints and enquiries management

| Complaints and enquiries management | |
|---|---|
| Responding to complaints received during standard work hours | ▪ Investigate and determine source of complaint immediately<br>▪ Provide an oral response acknowledging receipt of complaint to complainant as soon as possible. Every effort will be made to respond within 24 hours for emails, or one week for letters<br>▪ Investigate the potential environmental impacts and consequences of the complaint<br>▪ Record details of complaint received, how it was managed and the actions required to close out the complaint<br>▪ Provide an update of the complaints register to the ER for any complaints received on the day they are received. |
| Responding to enquiries received during standard work hours | ▪ Record details of enquiry received<br>▪ Provide a response to enquirer on the next business day. |
| Responding to enquiries and complaints out of hours | ▪ Stakeholders will be provided with the Project phone number for specific complaints and enquiries related to works out of hours. This number will be monitored by the CRM on a 24-hour basis<br>▪ The CRM will triage complaints and enquiries and liaise directly with the Principal Contractor to respond. Non-urgent enquiries and complaints will be dealt with on the next business day<br>▪ All details of the enquiry or complaint will be recorded in the Project consultation complaint register by the CRM.<br>▪ Provide an update of the complaints register to the ER for any complaints received on the day they are received. |

# 8. Review and improvement

## 8.1 Continuous improvement

Continuous improvement of the NVMP will be carried out through the continued evaluation of mitigation and management measures against environmental policies, objectives and targets and identifying where opportunities exist for improvement.

The continuous improvement process will include:

- Identifying opportunities to improve environmental management measures and performance
- Identify the causes of any non-compliances with the relevant criteria
- Develop an effective plan to address any identified non-compliances
- Determine the effectiveness of applied mitigation measures
- Document any changes to work procedures undertaken to control non-compliances and/or improve efficiencies
- Compare work process results with the relevant objectives and targets.

## 8.2 Staging and Review of Management Plans

The Department's approval for the staging of management plans into construction and operation phases was provided on the 22nd of December 2021.

Regular reviews of management documentation will also occur and after certain events. The triggers for further review of this Management Plan include:

(a) the submission of an incident report under condition C6;

(b) the submission of an audit report under conditions C15 to C19;

(c) the approval of any modification to the conditions of this approval;

(d) a direction of the Secretary (Department of Planning Industry and Environment) under condition A2 of Schedule 2;

(e) as initiated by the Principal Contractor or Snowy Hydro; or

(f) upon the advice of the Environmental Representative.

Where revisions are made, then within 4 weeks of the review the revised document will be submitted to the Secretary for approval, unless otherwise agreed with the Secretary, or within the scope of the Environmental Representative role as set out in condition A23.

## 8.3 Update and amendment

Where necessary, the NVMP will be required to be updated. Document and records management for the Project is described in Section 7.7 of the CEMS.

# 9. References

DECC 2006, *Assessing Vibration: a technical guideline,* NSW Department of Environment and Climate Change, Sydney, NSW.

DECC 2009, *Interim Construction Noise Guideline,* NSW Department of Environment and Climate Change, Sydney South, NSW.

DECC 2011, *NSW Road Noise Policy*, NSW Department of Environment and Climate Change, Sydney, NSW.

NSW EPA 2017, *Noise Policy for Industry*, October 2017

Jacobs 2021a, *Hunter Power Project Environmental Impact Statement (Rev 0 – Final),* Jacobs Group (Australia), 22 April 2021.

Jacobs 2021b, *Hunter Power Project Response to Submissions – Submissions Report (Rev 1)*, Jacobs Group (Australia), 30 July 2021.

RMS 2016, *Construction Noise and Vibration Guidelines*, Roads and Maritime Services, North Sydney, NSW.

# Appendix 1

*This appendix contains the information regarding traffic generating activities as presented in the Traffic Management Plan.*

## Traffic generating activities

The main traffic generating activities associated with the construction of the Project are summarised in Section **Error! Reference source not found.** of the Traffic Management Plan.

During construction, all vehicular access to the Project Site will be via the Hunter Expressway and Hart Road. Site access off Hart Road is deemed satisfactory given the following:

- The site access is already established at this location, thus there will be no need for additional civil works and disruption due to the construction of a new or additional driveway elsewhere.
- The roads used to access the site are sealed and currently cater for heavy vehicle movements associated with the adjacent industrial land uses.

## Construction traffic

### Light vehicles

Light vehicles will be used to transport staff to the construction site and for minor construction activities such as inspections and movement of light equipment. The expected distribution of light vehicles during the morning and afternoon peak hours is shown in Appendix 1 Figure 0-1 and Appendix 1 Figure 0-2, respectively.

Group transport for workstreams as well as partial ride sharing will be implemented by the Principal Contractor.

### Heavy vehicles

The following heavy vehicle movements are expected to be generated during the construction of the Project. Where efficiencies and more effective transport options and/or machinery are available these will also be utilised with timing of their use adjusted in accordance with the Project schedule:

- Heavy rigid: transport of bulk materials including gravel, concrete (or components including sand, gravel and cement)
- Semi-trailer (2 and 3-axle): delivery of structural, mechanical and electrical equipment (other than those requiring oversize transport), temporary offices and lunchrooms
- B double: fuel supply for first fill and commissioning
- Cranage: assumed two mobile all terrain cranes, one large crawler for peak construction (between September 2022 and May 2023) and two mobile Franna cranes. Two mobile Franna cranes otherwise during other parts of construction
- Heavy machinery: sourced locally and transported via low-loader. Assumed to remain onsite for the duration of individual assignments (e.g. earthmoving equipment).

Bulk materials, equipment and heavy machinery required to construct the Project are expected to originate from the east, including from the Port of Newcastle. All heavy vehicles will be required to travel via heavy vehicle-approved roads and will enter and exit the site via the Hunter Expressway and Hart Road, as shown in Appendix 1 Figure 0-3. As outlined in Section 3.1 of the Traffic Management Plan, the Hunter Expressway and Hart Road both permit 25/26 m B-double and 4.6 m high vehicles.

**Oversized overmass vehicles (OSOM)**

Approximately 10 two-way oversized vehicle movements are expected to be required during the construction phase to transport certain oversized equipment from the Port of Newcastle to the Project Site. A OSOM Transport Management Plan was prepared as part of the EIS to address OSOM vehicles.

In addition to the OSOM Transport Management Plan, OSOM vehicle movements that require adjustments to the State Road network and infrastructure will require separate TfNSW consultation and approval.

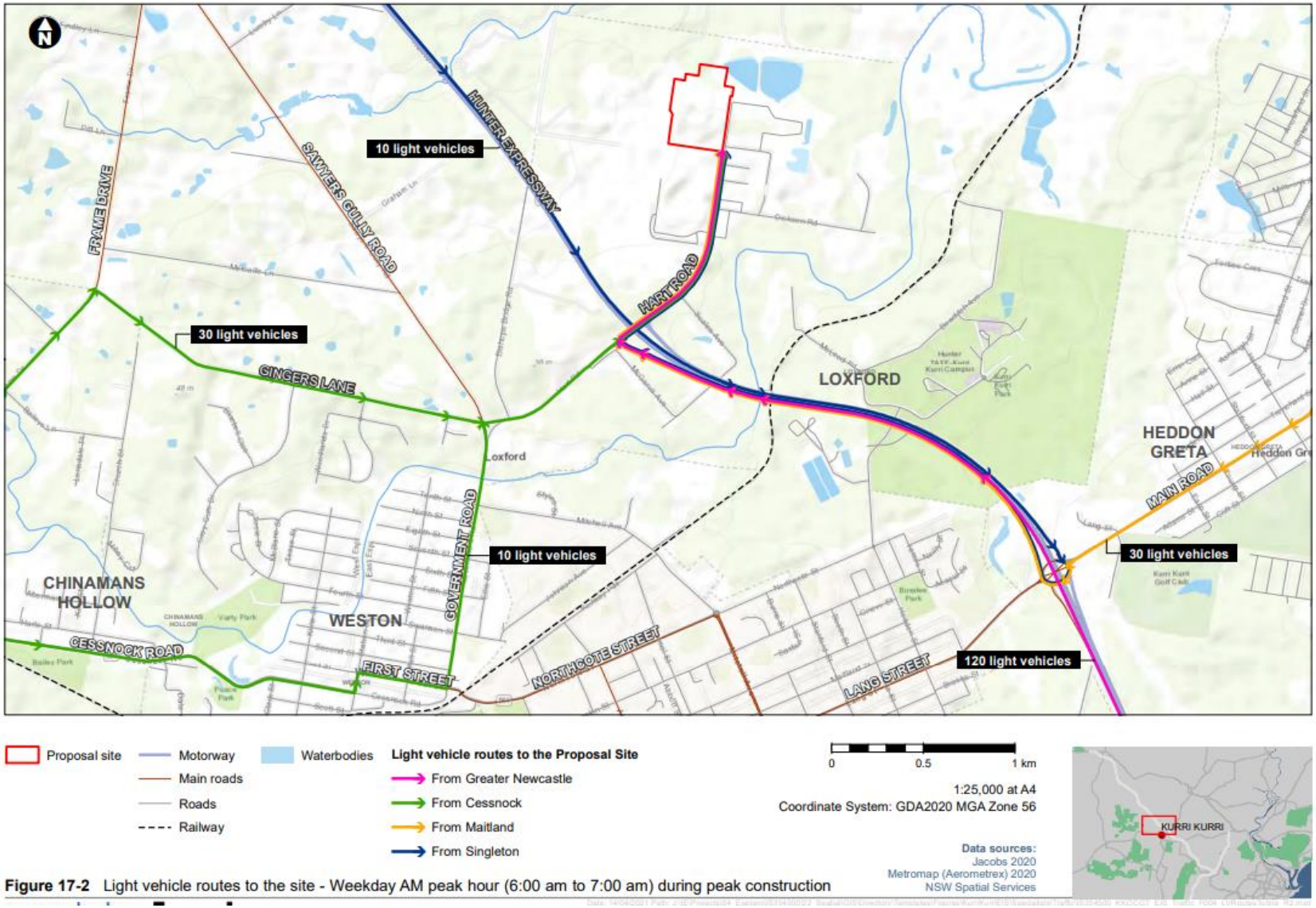



**Figure 17-2** Light vehicle routes to the site - Weekday AM peak hour (6:00 am to 7:00 am) during peak construction

Figure 0-1: Light vehicle routes to the site – Weekday AM peak hour

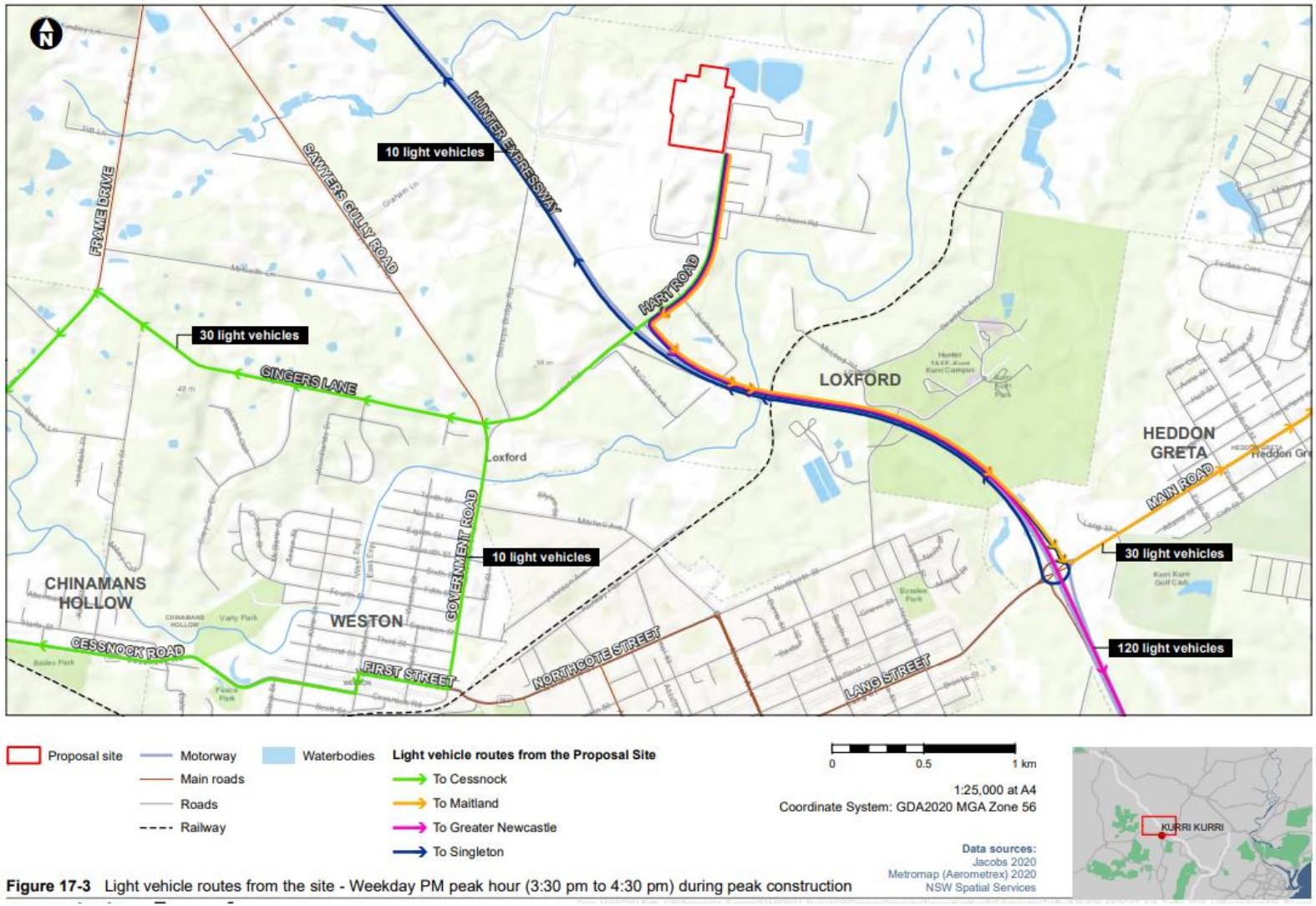



Figure 0-2: Light vehicle routes to the site – Weekday PM peak hour

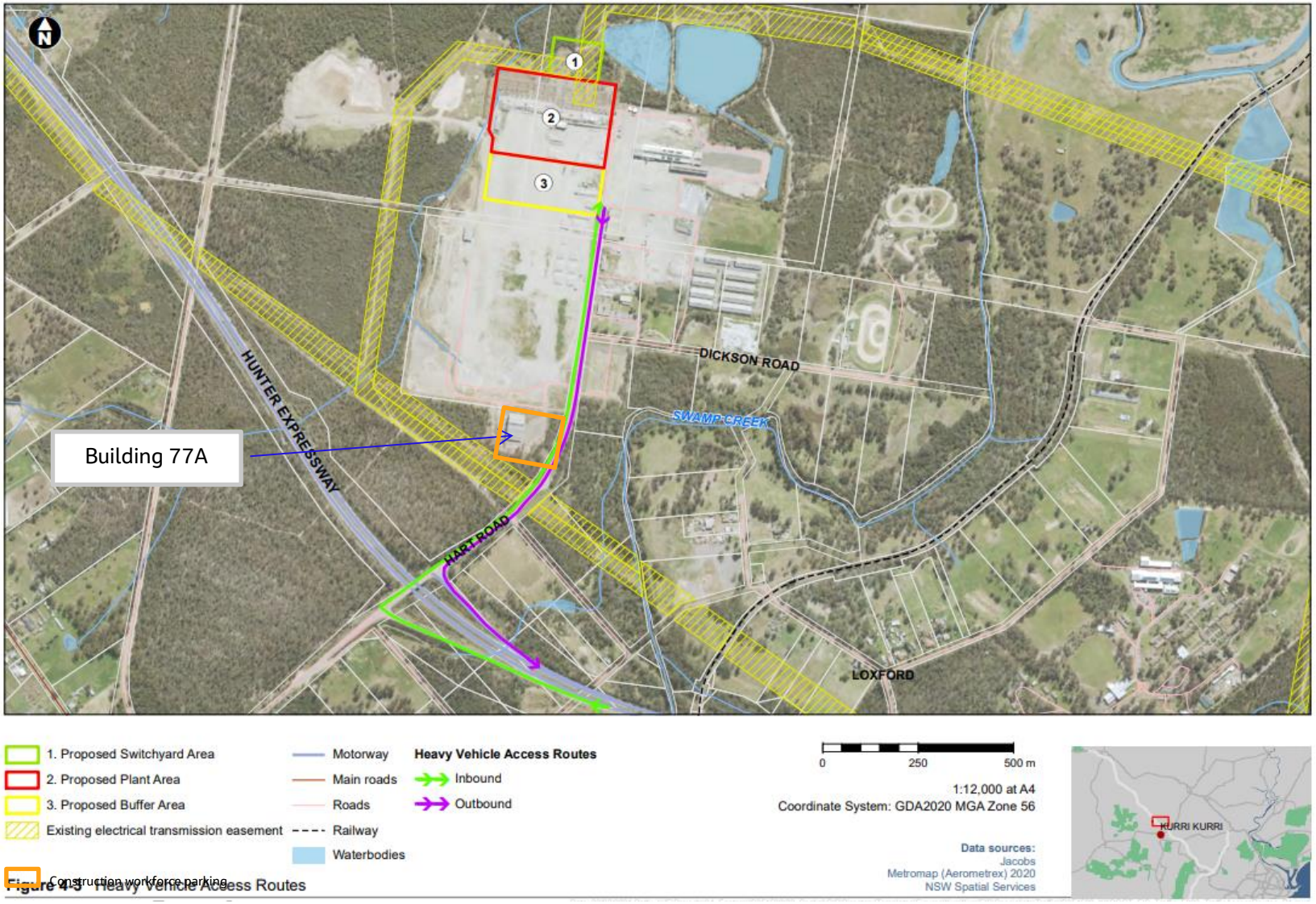



Figure 0-3: Heavy vehicle access routes

**Construction traffic volumes and timing**

A summary of the anticipated traffic volume associated the construction of the Project provided in Appendix 1 Table 0-1. During peak construction periods, a peak of 100 one-way light vehicle movements is expected during the hours prior to shift commencement (5:30 am to 6:30 am) and after shift end (3:30 pm to 4:30 pm). A peak of 120 one-way heavy vehicle movements per day (i.e. 60 inbound trips and 60 outbound trips), spread across standard construction hours, is expected to occur between July 2022 and May 2023.

Table 0-1: Construction traffic volumes and timing

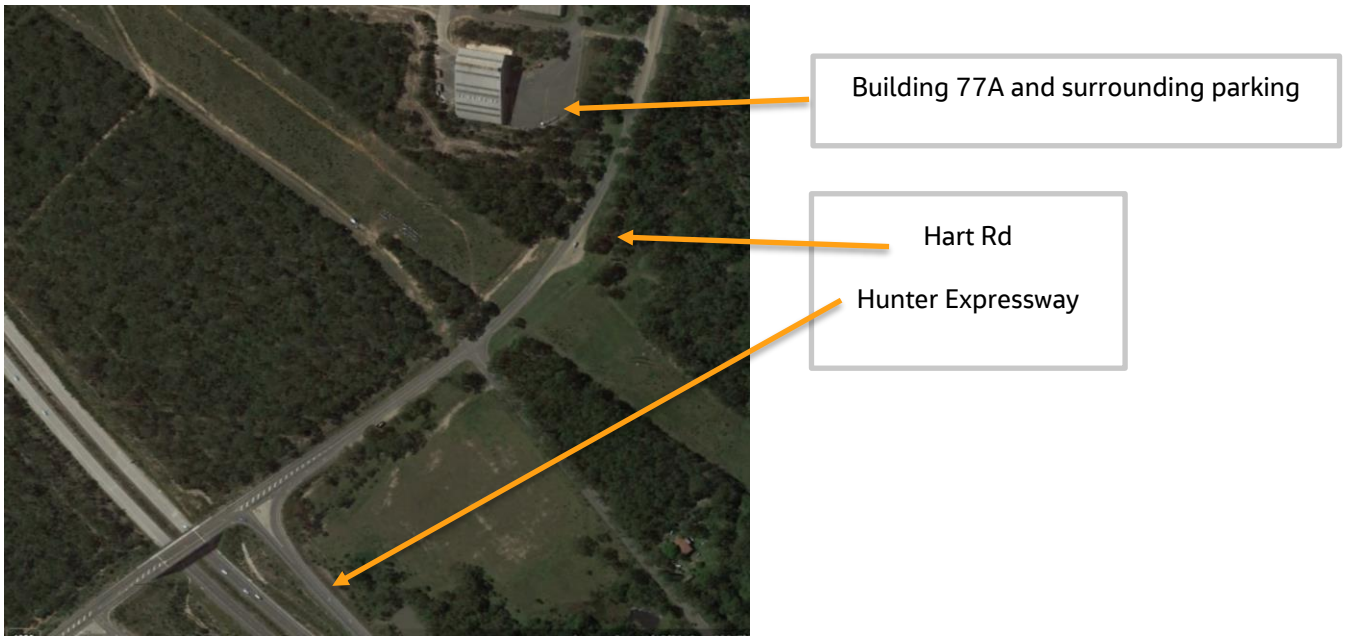
| Vehicle class | Total one-way vehicle movements over duration of construction period | Maximum one-way vehicle movements (per day) | Timing | | Project dates (approx.)[1] |
|---|---|---|---|---|---|
| Passenger | 72,000 | 200 | 5:30 am to 6:30 am | 3:30 pm to 4:30 pm | February 2022 – December 2023 |
| Heavy rigid | 9,900 | 100 | 7:00 am to 3:00 pm | | February 2022 – May 2023 |
| Semi-trailer | 400 | 20 | 7:00 am to 3:00 pm | | July 2022 – May 2023 |
| B-double | 240 | 12 | 8:00 am to 4:00 pm | | May 2023 – December 2023 |
| Oversize overmass | 20 | 2 | Off-peak (most likely travelling overnight) | | September 2022 – November 2022 |
| Cranage | 10 | 4 | Off-peak period | | July 2022 – May 2023 |
| Heavy machinery (via low loader) | 40 | 4 | Off-peak period | | February 2022 – May 2023 |
| **Total** | 82,610 | | | | |

*Note: Project dates assume commencement of construction in February 2022.*

## Construction worker parking

All parking will be accommodated on-site or on adjacent properties by agreement with the land holder (Hydro Aluminium Kurri Kurri Pty Ltd) / Industrial Estate Developer). Snowy Hydro has a 'Licence to Occupy' agreement for 'Building 77A' and surrounds in place with the Partnership of McCloy Loxford Land and Dowmere commencing on 15th January 2021 and expiring on 9th January 2024 for the land folio identifiers 16/1082775 and 3/456769, which includes the uses of offices and worker parking described in this section. This area forms part of Hydro Aluminium's existing Environmental Protection Licence 1548 premises and the permitted use includes access and parking. The intention is not to have parking in the Buffer Land portion of the Project Site as not doing so will improve management of construction workforce safety, however, there is the potential for temporary parking in the Buffer Land area. Please see Figure 4-3 which identifies the Buffer Land as Area '3', and also the location of Building 77A. It's noted that the parking around building 77A is currently an established asphalt parking area, shown in the picture below this paragraph, and in relation to the Hunter Expressway and Hart Rd for context.

The purple (outbound) and green lines (inbound) in Figure 4-4 identify the alignment of the existing asphalted Hart Rd which will be used by the construction workforce to move from building 77A to the project site. Building 77A is also identified in Figure 4-4. The parking surrounding building 77A is shown in the figure below to show the asphalted area and connecting driveway between it and Hart Rd.



# Appendix 2 - Environment Protection Licence

# Environment Protection Licence

Licence - 21627

| Licence Details | |
|---|---|
| Number: | 21627 |
| Anniversary Date: | 31-January |

| Licensee |
|---|
| SNOWY HYDRO LIMITED |
| 2 HART ROAD |
| LOXFORD NSW 2327 |

| Scheduled Activity |
|---|
| Electricity generation |

| Fee Based Activity | Scale |
|---|---|
| Generation of electrical power from gas | > 1000-4000 GWh annual generating capacity |

| Contact Us |
|---|
| NSW EPA |
| 4 Parramatta Square |
| 12 Darcy Street |
| PARRAMATTA NSW 2150 |
| Phone: 131 555 |
| Email: info@epa.nsw.gov.au |
| Locked Bag 5022 |
| PARRAMATTA NSW 2124 |

# Environment Protection Licence

Licence - 21627

# Environment Protection Licence

Licence - 21627

# Environment Protection Licence

Licence - 21627

## Information about this licence

### Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

### Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

### Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

### Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

### Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

### Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

# Environment Protection Licence



The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

**Transfer of licence**

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

**Public register and access to monitoring data**

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

## This licence is issued to:

| |
|---|
| **SNOWY HYDRO LIMITED** |
| **2 HART ROAD** |
| **LOXFORD NSW 2327** |

subject to the conditions which follow.

# Environment Protection Licence

Licence - 21627

## 1 Administrative Conditions

### A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled development work listed below at the premises listed in A2:
Construction of the Hunter Power Station, subject of Project Apporval xxx under the Environmental Planning and Assessment Act 1979.

A1.2 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

| Scheduled Activity | Fee Based Activity | Scale |
|---|---|---|
| Electricity generation | Generation of electrical power from gas | > 1000 - 4000 GWh annual generating capacity |

### A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

| Premises Details |
|---|
| **HUNTER POWER STATION** |
| **HART ROAD** |
| **LOXFORD** |
| **NSW 2327** |
| |
| **PREMISES WITHIN THE "PREMISES BOUNDARY" MARKED AND SHOWN ON THE PLAN TITLED "PREMISES PLAN: HUNTER POWER STATION", PREPARED BY JACOBS, REVISION 1, DATE 16/12/21, AND THE SPATIAL FILES TITLED "KKOCGT_DPIE_PREMISEMAP_BOUNDARY.ZIP" EMAILED TO THE EPA ON 17/12/2021 (EPA REF. DOC22/26802).** |

### A3 Other activities

A3.1 This licence applies to all other activities carried on at the premises, including:

| Ancillary Activity |
|---|

# Environment Protection Licence



Generation of electrical power from diesel

### A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:
a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

## 2 Discharges to Air and Water and Applications to Land

### P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

***Air***

| EPA identification no. | Type of Monitoring Point | Type of Discharge Point | Location Description |
|---|---|---|---|
| 1 | Discharge to air<br>Air emissions monitoring | Discharge to air<br>Air emissions monitoring | Unit 1 gas turbine stack marked and shown as "Unit 1" on plan titled "Premises plan: Hunter Power Station", prepared by Jacobs, Revision 0, dated 8/11/2021 (EPA reference DOC21/1012033). |
| 2 | Discharge to air<br>Air emissions monitoring | Discharge to air<br>Air emissions monitoring | Unit 2 gas turbine stack marked and shown as "Unit 2" on plan titled "Premises plan: Hunter Power Station", prepared by Jacobs, Revision 0, dated 8/11/2021 (EPA reference DOC21/1012033). |

P1.2 Prior to commissioning the facility, the licensee must provide to the EPA an updated plan of the premises marking and showing the as built location of licensed Points 1 and 2. The plan must be provided by email to info@epa.nsw.gov.au.

P1.3 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

***Water and land***

| EPA Identification no. | Type of Monitoring Point | Type of Discharge Point | Location Description |
|---|---|---|---|

| | | |
|---|---|---|
| 3 | Discharge quality monitoring | Outlet of stormwater system marked and shown as "Point 1" on plan titled "Premises plan: Hunter Power Station", prepared by Jacobs, Revision 0, dated 8/11/2021 (EPA reference DOC21/1012033). |

P1.4 The following points referred to in the table below are identified in this licence for the purposes of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises.

***Noise/Weather***

| EPA identification no. | Type of monitoring point | Location description |
|---|---|---|
| 4 | Meteorological Station | Meteorological station to be appropriately sited and established (with its and location to be marked and shown on an updated plan of the premises to be provided to the EPA) prior to commencing operations. |

# 3 Limit Conditions

## L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

## L2 Load limits

L2.1 The actual load of an assessable pollutant discharged from the premises during the reporting period must not exceed the load limit specified for the assessable pollutant in the table below.

Note: An assessable pollutant is a pollutant which affects the licence fee payable for the licence.

L2.2 The actual load of an assessable pollutant must be calculated in accordance with the relevant load calculation protocol.

| Assessable Pollutant | Load limit (kg) |
|---|---|
| Nitrogen Oxides (Air) | |
| Salt (Enclosed Water) | |
| Total suspended solids (Enclosed Water) | |

# Environment Protection Licence

Licence - 21627

## L3 Concentration limits

L3.1 For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L3.2 Air Concentration Limits

**POINT 1,2**

| Pollutant | Units of measure | 100 percentile concentration limit | Reference conditions | Oxygen correction | Averaging period |
|---|---|---|---|---|---|
| Nitrogen Oxides | milligrams per cubic metre | 51 | Dry, 273K, 101.3kPa | 15% O2 | 1 hour |
| Carbon monoxide | milligrams per cubic metre | 12.5 | Dry, 273K, 101.3kPa | 15% O2 | 1 hour |

L3.3 For the purposes of the table above, the air concentration limits specified apply when Unit/s associated with licensed Points 1 and 2 are being fired on natural gas.

L3.4 The following air concentration limits apply when the Unit/s associated with licensed Points 1 and 2 are being fired on diesel.

| Pollutant (and units of measure in mg/m3) | 100 percentile concentration limit | Reference conditions | Oxygen correction | Averaging period |
|---|---|---|---|---|
| Nitrogen Oxides | 86 | Dry, 273K, 101.3kPa | 15% O2 | 1 hour |
| Carbon monoxide | 63 | Dry, 273K, 101.3kPa | 15% O2 | 1 hour |

L3.5 For the purposes of the air concentration limits specified in the table(s) above, Nitrogen Oxides means: nitrogen dioxide ($NO_2$) or nitrogen oxide (NO) or both, as $NO_2$ equivalent.

L3.6 The limits contained in this licence do not apply during a period of start up or shut down, as defined by the Protection of the Environment Operations (Clean Air) Regulation 2021.

Note: While the limits contained in this licence do not apply under the specified periods, the licensee will still be subject to the requirements of Section 128(2) of the Protection of the Environment Operations Act 1997.

**Air concentration limit emergency exceedances**

L3.7 The air concentration limits specified in the licence may be temporarily exceeded under the following circumstances:

1. the Australian Electricity Market Operator (AEMO), or a person authorised by AMEO, directs the licensee, under the National Electricity Law and the National Electricity Rules, to take relevant actions to maintain or restore the security or reliability of the electricity network; and
2. the relevant AEMO direction referred to above remains in force; and

3. the licensee takes all practical measures to prevent and minimise air pollution.

## L4 Noise limits

L4.1 Noise generated at the premises must not exceed the noise limits (expressed in dB) at the times and locations in the table below.

| Location | Day LAeq (15min) | Evening LAeq (15min) | Night LAeq (15min) | Night LAFmax |
|---|---|---|---|---|
| 103 Bishops Bridge Rd, Sawyers Gully | 50 | 48 | 41 | 52 |
| 10 Dawes Ave, Loxford | 45 | 45 | 43 | 53 |
| 20 Bowditch Ave, Loxford | 43 | 43 | 38 | 52 |
| 464 Cessnock Rd, Gillieston Heights | 40 | 35 | 35 | 52 |
| 59 Sawyers Gully Rd, Sawyers Gully | 42 | 42 | 38 | 52 |

L4.2 For the purposes of Condition L4.1:
a) Day means the period from 7am to 6pm Monday to Saturday, and the period from 8am to 6pm Sundays and Public Holidays;
b) Evening means the period from 6pm to 10pm; and
c) Night means the period from 10pm to 7am Monday to Saturday, and the period from 10pm to 8am Sundays and Public Holidays.

L4.3 Noise-enhancing meteorological conditions:
a) The noise limits set out in licence condition L4.1 apply under the meteorological conditions in the following table.
b) For those meteorological conditions not referred to in the table below, the noise limits that apply are the noise limits in licence condition L4.1 plus 5dB.

| Assessment Period | Meteorological Condition |
|---|---|
| Day | Stability Categories A, B, C and D with wind speeds up to and including 3m/s at 10m above ground level. |
| Evening | Stability Categories A, B, C and D with wind speeds up to and including 3m/s at 10m above ground level. |
| Night | Stability Categories A, B, C and D with wind speeds up to and including 3m/s at 10m above ground level;<br>or<br>Stability category E and F with wind speeds up to and including 2m/s at 10m above ground level. |

L4.4 For the purposes of licence condition L4.3:

a) The meteorological conditions are to be determined from meteorological data obtained from the licensed Point 4.
b) Stability category shall be determined using the following method from Fact Sheet D of the *Noise Policy for Industry* (NSW EPA, 2017):
i) Use of sigma-theta data (section D1.4).

L4.5 To assess compliance:
a) with the $L_{Aeq(15\ minutes)}$ or the $L_{Amax}$ noise limits in licence condition L4.1 and L4.3, the noise measurement equipment must be located:
(i) approximately on the property boundary, where any residence is situated 30 metres or less from the property boundary closest to the premises; or where applicable,
(ii) in an area within 30 metres of a residence façade, but not closer that 3 metres where any residence on the property is situated more than 30 metres from the property boundary closest to the premises; or where applicable,
(iii) in an area within 50 metres of the boundary of a National Park or Nature Reserve,
(iv) at any other location identified in licence condition L4.1.

b) with the $L_{Aeq(15\ minutes)}$ or the $L_{Amax}$ noise limits in licence condition L4.1 and L4.3, the noise measurement equipment must be located:
(i) at the reasonably most affect point at a location where there is no residence at the location; or
(ii) at the reasonably most affected point within at area at a location prescribed by licence condition L4.5(a).

L4.6 A non-compliance of licence conditions L4.1 and L4.3 will still occur where noise generated from the premises is measured in excess of the noise limit at a point other than the reasonably most affected point at locations referred to in licence condition L4.5(a) or L4.5(b).

L4.7 For the purposes for licence conditions L4.5 and L4.6, the reasonably most affected point is a point at a location or within an area at a location experiencing or expected to experience the highest sound pressure level from the premises.

L4.8 For the purpose of determining the noise generated from the premises, the modifying factor corrections in Table C1 in Fact Sheet C of the *Noise Policy for Industry* (NSW EPA, 2017) may be applied, if appropriate, to the noise measurement by the noise monitoring equipment.

L4.9 Noise measurements must not be undertaken where rain or wind speed at microphone level will affect the acquisition of valid measurements.

L4.10 For the purposes of the licence:

- Noise Policy for Industry means the document entitled "*Noise Policy for Industry*" published by the NSW Environment Protection Authority in October 2017.
- Noise – 'sound pressure levels' for the purposes of conditions L4.1 to L4.8 includes:
- LAeq (15 minute), meaning the value of the A-weighted sound pressure level of a continuous steady sound that, over a 15 minute time interval, has the same mean square sound pressure level as a sound under consideration with a level that varies with time (Australian Standard AS 1055:2018 *Acoustics: description and measurement of environmental noise*).
- LAFmax, meaning the maximum sound pressure level of an event measured with a sound level meter satisfying Australian Standard AS IEC 61672.1-2013 *Electroacoustics - Sound level meters - Part 1: Specifications* set to 'A' frequency weighting and fast time weighting.

# Environment Protection Licence



## L5 Hours of operation

### Construction hours

L5.1 All construction work at the premises must be conducted between 7am and 6pm Monday to Friday, and 8am and 1pm Saturdays, and at no time Sundays and Public Holidays.

### Exceptions to construction hours

L5.2 The following activities may be carried out outside the construction hours in licence condition L5.1:

a) construction that causes LAeq(15minute) noise levels that are:

(i) no more than 5dB above Rating Background Level at any residence in accordance with the *Interim Construction Noise Guideline* (DECC, 2009); and

(ii) no more than the Noise Management Levels specified in Table 3 of the *Interim Construction Noise Guideline* (DECC, 2009) at other sensitive land uses; or

b) for the delivery of materials required by the police or other authorities for safety reasons; or

c) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or

d) as approved through the process outlined in “Variation of construction hours” of the licence.

### Variation of construction hours

L5.3 The hours of construction activities specified under “Exceptions to construction hours” in licence condition L5.2 may be varied with the prior written approval. Any request to alter the hours of construction shall be:

a) considered on a case-by-case or activity-specific basis;

b) accompanied by details of the nature and justification for activities to be conducted during the varied construction hours;

c) accompanied by written evidence that appropriate consultation with potentially affected sensitive receivers and notification of relevant Council(s) (and other relevant agencies) has been and will be undertaken;

d) all feasible and reasonable noise mitigation measures have been put in place; and

e) accompanied by a noise impact assessment consistent with the requirements of the *Interim Construction Noise Guideline* (DECCW, 2009).

## L6 Potentially offensive odour

L6.1 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

# Environment Protection Licence



### L7 Other limit conditions

**Fuel requirements and limitations on hours of operation**

L7.1 Fuel burning equipment must not be operated for the purpose of generating electrical power at the premises for more than 1100 cumulative hours per calendar year.

L7.2 Fuel burning equipment must not be fired on diesel for the purpose of generating electrical power at the premises for more than 175 cumulative hours per calendar year.

L7.3 Any application to modify the approved operating hours in licence conditions L7.1 and L7.2 must be accompanied by a revised air quality impact assessment; demonstrating the project is using best available air pollution control technology and a commitment for project operations post modification to be nitrogen oxides (NOx) emission neutral.

L7.4 Distillate fuel used in the power station must comply with the Australian Government's *Fuel Quality Standards (Automotive Diesel) Determination 2019* made under the *Fuel Quality Standards Act 2000.*

L7.5 The licensee may exceed the maximum hours specified in licence conditions L7.1 and L7.2 in the event that operation, or continued operation, is required if:
a) the Australian Electricity Market Operator (AEMO), or a person authorised by AEMO, directs the proponent, under the National Electricity Law and the National Electricity Rules, to take relevant actions to maintain or restore the security or reliability of the electricity network; and
b) the relevant AEMO direction referred to above remains in force; and
c) the licensee takes all practical measures to prevent or minimise air pollution.

L7.6 The licensee must notify the EPA of any and all limit exceedances due to the activation of licence condition L7.5 within 24 hours of an exceedance.

## 4 Operating Conditions

### O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

### O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
a) must be maintained in a proper and efficient condition; and
b) must be operated in a proper and efficient manner.

# Environment Protection Licence



## O3 Dust

O3.1 The premises must be maintained in a condition which prevents the emission of dust from the premises.

O3.2 All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.

O3.3 Trucks entering and leaving the premises that are carrying loads of dust generating materials must have their loads covered at all times, except during loading and unloading.

## O4 Emergency response

Note: The licensee must maintain, and implement as necessary, a current Pollution Incident Response Management Plan (PIRMP) for the premises in accordance with Part 5.7A of the Protection of the Environment Operations Act 1997 and Part 4 of the Protection of the Environment Operations (General) Regulation 2021.

## O5 Waste management

O5.1 The licensee must ensure that any liquid and/or non liquid waste generated and/or stored at the premises is assessed and classified in accordance with the EPA's Waste Classification Guidelines as in force from time to time.

O5.2 The licensee must ensure that waste identified for recycling is stored separately from other waste.

## O6 Other operating conditions

**Chemical storage**

O6.1 The licensee must store and handle all liquid chemicals and hazardous materials used at the premises within bunded areas that are constructed and maintained in accordance with the following:
a) any relevant Australian Standards for the liquids being stored;
b) within a bunded area with a minimum bund capacity of 110% of the volume of the largest single stored vessel within the bund;
c) the Storing and Handling Liquids: Environmental Protection Participant's Manual (DECC, 2007); and
where any conflict exists between these requirements, the most stringent requirements apply.

O6.2 For the purpose of condition O7.12 above, any tanks or other storage vessels that are interconnected and may distribute their contents either by gravity or automated pumps must be considered a single vessel.

**Sulfur content in diesel**

O6.3 The sulfur content in the diesel fuel used for firing the power station must comply with the Australian Government's *Fuel Quality Standards (Automotive Diesel) Determination 2019* made under the *Fuel Quality Standards Act 2000.*

**Erosion and sediment control**

O6.4 Prior to the commencement of any construction or other surface disturbance the applicant must install and maintain suitable sediment and erosion controls onsite, in accordance with the revenant requirements of the *Managing Urban Stormwater: Soils and Construction – Volume 2A Installation of Services* (DECC 2008).

# 5 Monitoring and Recording Conditions

## M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
a) in a legible form, or in a form that can readily be reduced to a legible form;
b) kept for at least 4 years after the monitoring or event to which they relate took place; and
c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
a) the date(s) on which the sample was taken;
b) the time(s) at which the sample was collected;
c) the point at which the sample was taken; and
d) the name of the person who collected the sample.

## M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

**POINT 1,2**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Carbon monoxide | milligrams per cubic metre | Continuous | CEM-4 and US EPA Procedure 1 |
| Moisture | percent | Continuous | Special Method 1 |
| Nitrogen Oxides | milligrams per cubic metre | Continuous | CEM-2 and US EPA Procedure 1 |
| Oxygen (O2) | percent | Continuous | CEM-3 and US EPA Procedure 1 |
| Temperature | degrees Celsius | Continuous | TM-2 and US EPA Procedure 1 |

# Environment Protection Licence



| | | | |
|---|---|---|---|
| Velocity | metres per second | Continuous | CEM-6 and US EPA Procedure 1 |
| Volumetric flowrate | cubic metres per second | Continuous | CEM-6 and US EPA Procedure 1 |

M2.3 For the purposes of the table(s) above Special Method 1 means any moisture monitoring method approved in writing by the EPA, and USEPA Procedure 1.

M2.4 For the purposes of the table(s) above, Nitrogen Oxides means: nitrogen dioxide ($NO_2$) or nitrogen oxide (NO) or both, as $NO_2$ equivalent.

M2.5 Water and/ or Land Monitoring Requirements

**POINT 3**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Oil and Grease | milligrams per litre | Monthly during discharge | Grab sample |
| pH | pH | Monthly during discharge | Grab sample |
| Total solids | milligrams per litre | Monthly during discharge | Grab sample |
| Total suspended solids | milligrams per litre | Monthly during discharge | Grab sample |
| Turbidity | nephelometric turbidity units | Monthly during discharge | Grab sample |

## M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:
a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2021* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods

Publication unless another method has been approved by the EPA in writing before any tests are conducted.

## M4 Testing methods - load limits

Note: Division 3 of the *Protection of the Environment Operations (General) Regulation 2021* requires that monitoring of actual loads of assessable pollutants listed in L2.2 must be carried out in accordance with the relevant load calculation protocol set out for the fee-based activity classification listed in the Administrative Conditions of this licence.

## M5 Weather monitoring

M5.1 At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sampling frequency, specified opposite in the Columns 2, 3, 4 and 5 respectively.

**POINT 4**

| Parameter | Sampling method | Units of measure | Averaging period | Frequency |
|---|---|---|---|---|
| Siting | AM-1 | - | - | Continuous |
| Temperature at 2 metres | AM-4 | degrees Celsius | 1 hour | Continuous |
| Wind Direction at 10 metres | AM-2 & AM-4 | Degrees | 15 minutes | Continuous |
| Wind Speed at 10 metres | AM-2 & AM-4 | metres per second | 15 minutes | Continuous |
| Sigma Theta | AM-2 & AM-4 | Degrees | 15 minutes | Continuous |
| Rainfall | AM-4 | millimetres | 15 minutes | Continuous |
| Relative humidity | AM-4 | percent humidity | 1 hour | Continuous |

## M6 Recording of pollution complaints

M6.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M6.2 The record must include details of the following:
a) the date and time of the complaint;
b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the

complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.

M6.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M6.4 The record must be produced to any authorised officer of the EPA who asks to see them.

### M7 Telephone complaints line

M7.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M7.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M7.3 The preceding two conditions do not apply until one month the date of the issue of this licence.

### M8 Noise monitoring

M8.1 Attended noise monitoring must be undertaken in accordance with licence condition L4.5 and must:
a) occur at each location specified in Condition L4.1;
b) occur annually in a reporting period;
c) occur during each day, evening and night period as defined in the *Noise Policy for Industry* for a minimum of:
- 1.5 hours during the day;
- 30 minutes during the evening; and
- 1 hour during the night.

d) occur for three consecutive operating days.
Note: The above requirements do not come into effect until the facility commences to be commissioned.

## 6 Reporting Conditions

### R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

1. a Statement of Compliance,
2. a Monitoring and Complaints Summary,
3. a Statement of Compliance - Licence Conditions,
4. a Statement of Compliance - Load based Fee,
5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:
a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 Where the licensee is unable to complete a part of the Annual Return by the due date because the licensee was unable to calculate the actual load of a pollutant due to circumstances beyond the licensee's control, the licensee must notify the EPA in writing as soon as practicable, and in any event not later than the due date. The notification must specify:
a) the assessable pollutants for which the actual load could not be calculated; and
b) the relevant circumstances that were beyond the control of the licensee.

R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.8 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

## R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material

harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which they became aware of the incident.

## R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
a) where this licence applies to premises, an event has occurred at the premises; or
b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
a) the cause, time and duration of the event;
b) the type, volume and concentration of every pollutant discharged as a result of the event;
c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

## R4 Other reporting conditions

**Noise monitoring report**

R4.1 A noise compliance assessment report must be submitted to the EPA within 30 days of the completion of the annual monitoring. The assessment must be prepared by a competent person and include:
a) an assessment of compliance with noise limits presented in licence conditions L4.1 and L4.3; and
b) an outline of any management actions taken within the monitoring period to address any exceedences of the limits contained in licence conditions L4.1 and L4.3.

# Environment Protection Licence



## 7 General Conditions

### G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

## 8 Special Conditions

### E1 Final design verification and manufacturer's guarantee assessment

E1.1 Prior to construction, the licensee must provide a revised Air Quality Impact Assessment (Revised AQIA) that is based on the final design of the plant and includes emission specifications (emission rates and concentrations) based on manufacturer performance guarantees. Should the plant design and emissions characteristics differ from what was assessed previously in the document titled 'Hunter Power Project, Air Quality Impact Assessment' prepared by Jacobs, dated 30 July 2021, the Revised AQIA must include remodelling of emissions based on final design and reassessment of impacts.

The Revised AQIA must be provided to the EPA by email to info@epa.nsw.gov.au.

E1.2 The final design, installation and operation of the plant must not preclude the ability for air pollution emissions controls to be retrofitted.

### E2 Air quality verification

E2.1 Within six months of commissioning the plant (or an alternate timeframe agreed to in consultation with the EPA) and during a period in which the project is operating under high design loads, the licensee must undertake a monitoring program to confirm the air emission performance of the power station (Monitoring Program).

The Monitoring Program must include, as a minimum:
(a) two rounds of post-commissioning monitoring of the pollutants and parameters in the table below for each discharge point;
(b) consideration of the dual-fuel and peaking operability of the power station in capturing representative air pollutant emission concentrations and normal operating parameters; and
(c) sampling methods as per the NSW EPA's *Approved Methods for* the *Sampling and Analysis of Air Pollutants in New South Wales.*

For the purpose of the table below, Special Frequency 1 means two rounds of post commissioning monitoring.

# Environment Protection Licence



| Pollutant | Units of measure | Frequency | Sampling method |
|---|---|---|---|
| Total solid particles | Milligrams per cubic metre | Special Frequency 1 | TM-15 |
| Oxides of nitrogen | Milligrams per cubic metre | Continuous | CEM-2 and USEPA Procedure 1 |
| Sulfur dioxide | Milligrams per cubic metre | Special Frequency 1 | TM-4 |
| Volatile organic compounds (VOCs) | Milligrams per cubic metre | Special Frequency 1 | TM-34 |
| PAHs (as benzo[a]pyrene) | Milligrams per cubic metre | Special Frequency 1 | California Air Resources Board Method 429 |
| Oxygen | Percent | Continuous | CEM-3 |
| Moisture content | Percent | Special Frequency 1 | TM-22 |
| Molecular weight of stack gases | Grams per gram mole | Special Frequency 1 | TM-23 |
| Temperature | Degrees Celsius | Special Frequency 1 | TM-2 |
| Velocity | Metres per second | Continuous | CEM-6 |
| Dry gas density | Kilograms per cubic metre | Special Frequency 1 | TM-23 |

E2.2 Within six weeks of completing post-commissioning testing, the licensee must submit a Post Commissioning Verification Report (the Report) to the EPA. The Report must:
(a) Include all analytical results of post-commissioning monitoring required for all discharge points. Any external report must be reproduced in full.
(b) Include all the information listed in section 4 of the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
(c) Describe all the operational parameters during post-commissioning testing.
(d) Compare analytical results from post commissioning monitoring against final design emission specifications and modelled emission parameters (emission rates and concentrations) in the AQIA required under condition E1.1 (Final Design Verification Assessment).
(e) Should any comparison under paragraph (d) of this condition identify monitored discharge concentrations or emission rates above the emissions characteristics in the Revised AQIA or the Protection of the Environment Operations (Clean Air) Regulation 2021 standards of concentration, the licensee must:
(i) Re-assess and evaluate both the emissions concentrations against the Protection of the Environment Operations (Clean Air) Regulation 2021 standards of concentration and the impacts against the relevant impact assessment criteria in the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*; and/or
(ii) Identify actions and measures to be implemented to reduce emissions of air pollutants to no greater than those predicted in the Revised AQIA. Details of the actions and measures and a timetable for implementation shall be submitted to the EPA.

The Report must be provided to the EPA by email to info@epa.nsw.gov.au.

## E3 Notification of commissioning

E3.1 The licensee must provide written notification of its intention to commence fuel burning commissioning activities at the premises at least one month prior to these activities. The notification must be provided to the EPA via email to info@epa.nsw.gov.au.

# Environment Protection Licence

Licence - 21627

## Dictionary

### General Dictionary

| | |
|---|---|
| **3DGM [in relation to a concentration limit]** | Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples |
| **Act** | Means the Protection of the Environment Operations Act 1997 |
| **activity** | Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997 |
| **actual load** | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| **AM** | Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*. |
| **AMG** | Australian Map Grid |
| **anniversary date** | The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act. |
| **annual return** | Is defined in R1.1 |
| **Approved Methods Publication** | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| **assessable pollutants** | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| **BOD** | Means biochemical oxygen demand |
| **CEM** | Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*. |
| **COD** | Means chemical oxygen demand |
| **composite sample** | Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume. |
| **cond.** | Means conductivity |
| **environment** | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| **environment protection legislation** | Has the same meaning as in the Protection of the Environment Administration Act 1991 |
| **EPA** | Means Environment Protection Authority of New South Wales. |
| **fee-based activity classification** | Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009. |
| **general solid waste (non-putrescible)** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |

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|---|---|
| **flow weighted composite sample** | Means a sample whose composites are sized in proportion to the flow at each composites time of collection. |
| **general solid waste (putrescible)** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997 |
| **grab sample** | Means a single sample taken at a point at a single time |
| **hazardous waste** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| **licensee** | Means the licence holder describe d at the front of this licence |
| **load calculation protocol** | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| **local authority** | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| **material harm** | Has the same meaning as in section 147 Protection of the Environment Operations Act 1997 |
| **MBAS** | Means methylene blue active substances |
| **Minister** | Means the Minister administering the Protection of the Environment Operations Act 1997 |
| **mobile plant** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| **motor vehicle** | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| **O&G** | Means oil and grease |
| **percentile [in relation to a concentration limit of a sample]** | Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence. |
| **plant** | Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles. |
| **pollution of waters [or water pollution]** | Has the same me aning as in the Protection of the Environment Operations Act 1997 |
| **premises** | Means the premises described in condition A2.1 |
| **public authority** | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| **regional office** | Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence |
| **reporting period** | For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 mo nths. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act. |
| **restricted solid waste** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| **scheduled activity** | Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997 |
| **special waste** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| **TM** | Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*. |

# Environment Protection Licence

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| | |
|---|---|
| **TSP** | Means total suspended particles |
| **TSS** | Means total suspended solids |
| **Type 1 substance** | Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements |
| **Type 2 substance** | Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements |
| **utilisation area** | Means any area shown as a utilisation area on a map submitted with the application for this licence |
| **waste** | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| **waste type** | Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste |

Mr Steven James

Environment Protection Authority

(By Delegation)

Date of this edition: 31-January-2022

## End Notes