MANAGEMENT PLAN

SNOWY 2.0 SEGMENT FACTORY – NOISE MONITORING AND MANAGEMENT PLAN

S2-FGJV-ENV-PLN-0071

JUNE 2022

ABSTRACT

The key objective of this Plan is to detail management measures and inform site procedures for implementation so that noise and vibration impacts are minimised and within the scope permitted by the Infrastructure Approval.

Revision Record

Rev.	Date	Reason for Issue	Responsible	Accountable	Endorsed
K	15/06/2022	For issue to DPIE for approval	N.Jones	N.Jones	E.Porter

Document Verification

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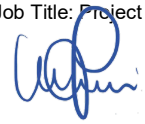
E ndorsed:	Name: Massimo Franceschi Job Title: Project Director  Signed: Date: 14/11/2022

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Revision Tracking

Rev.	Date	Description of Revision
A	20.12.2019	Initial draft for Snowy Hydro review
B	13.02.2020	Revised to address Snowy Hydro comments on Rev A. Issued for agency review.
C	08.03.2020	Revised to address agency comments.
D	06.04.2020	Revised to address Snowy Hydro comments and final conditions of approval. For issue to DPIE.
E	23.04.2020	Revised to address DPIE comments. For issue to DPIE.
F	10.10.2020	Revised for operation. For Issue to DPIE.
G	12.11.2020	Reviewed and updated to reflect operation
H	15.02.2021	Revised for operation. For Issue to DPIE.
I	08.10.2021	Reviewed for currency following incident and independent environmental audit.
J	26.11.2021	Reviewed for currency following incident.
K	15.06.2022	Reviewed following audit and EPL variation

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ABBREVIATIONS AND DEFINITIONS

Acronym	Definition
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This scale attempts to closely approximate the frequency response of the human ear.
DECC	NSW Department of Environment Climate Change
DECCW	NSW Department of Environment Climate Change and Water
DPIE	NSW Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
Segment Factory EIS	*Environmental Impact Statement – Proposed Segment Factory*
EMS	Environmental Management Strategy
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	NSW Environment Protection Authority
EPL	Environmental Protection Licence
Future Generation	Future Generation Joint Venture
Future Generation-PMS	Project Management System
ICNG	Interim Construction Noise Guidelines
KNP	Kosciusko National Park
LGA	Local Government Area
L_1	The noise level exceeded for 1% of the time within a given time period
L_{10}	The noise level which is exceeded 10% of the time within a given time period. It is roughly equivalent to the average of maximum noise level.
L_{90}	The noise level that is exceeded 90% of the time within a given time period. Commonly referred to as the background noise level.
L_{Aeq}	The energy average noise from a source. This is the equivalent continuous sound pressure level over a given time period.
L_{Amax}	The maximum sound pressure level measured within a given time period
NML	Noise Management Level
NMMP	Noise Monitoring and Management Plan
NPfI	*Noise Policy for Industry* (EPA, 2017)
OOH	Out of hours
OOHW	Out of hours works
POEO Act	*Protection of the Environment Operations Act 1997*
POEO Noise Control Regulation	*Protection of the Environment Operations (Noise Control) Regulation 2008*
RBL	The rating background level (RBL) is an overall single value background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the average background levels.
REMM	Revised environmental management measures
RNP	Road Noise Policy

Acronym	Definition
SEP	Site Environmental Plan
Snowy Hydro	Snowy Hydro Limited
Sound power level (Lw)	A measure of the total power radiated by a source. The sound power of a source is a fundamental property of the source and is independent of the surrounding environment.
Submissions Report or RTS	*Segment Factory Response to Submissions*

1. INTRODUCTION

1.1. Overview

Snowy Hydro Limited (Snowy Hydro) is constructing a pumped hydro-electric expansion of the Snowy Mountains Hydro-electric Scheme (Snowy Scheme), called Snowy 2.0. Snowy 2.0 is being built in two stages: Exploratory Works (which has commenced) and Main Works.

Snowy 2.0 will link the existing Tantangara and Talbingo reservoirs through a series of new underground tunnels and a hydro-electric power station. Most of the project's facilities will be built underground, with approximately 27 kilometres of concrete-lined tunnels constructed to link the two reservoirs and a further 20 kilometres of tunnels required to support the facility. Intake and outlet structures will be built at both Tantangara and Talbingo Reservoirs.

Snowy 2.0 will increase the generation capacity of the Snowy Scheme by an additional 2,000 MW, and at full capacity will provide approximately 350,000 MWh of large-scale energy storage to the National Electricity Market (NEM). This will be enough to ensure the stability and reliability of the NEM, even during prolonged periods of adverse weather conditions.

Webuild, Clough and Lane have formed the Future Generation Joint Venture (Future Generation) and have been engaged to deliver both Stage 2 of Exploratory Works and Main Works. To support the construction of these projects, a precast concrete segment factory is required to be established to enable the concrete segments that line the tunnel to be manufactured.

This plan has been prepared for the Snowy 2.0 Segment Factory (Segment Factory or project).

1.2. Background

The Segment Factory is required to manufacture precast concrete segments exclusively to line the tunnels being excavated for Snowy 2.0 Exploratory Works and Main Works. The construction and operation of the Segment Factory is essential for the efficient completion and realisation of Snowy 2.0. The Segment Factory will operate the production and transportation approximately 14,500 precast reinforced concrete tunnel rings (containing 130,500 segments) to be exclusively used on the Snowy 2.0 project.

The Segment Factory is located on industrial-zoned land in the south-eastern corner of Polo Flat, an industrial zoned area located to the east of Cooma. The operational facility contains a concrete batching plant (CBP), a warehouse building for the manufacture of precast concrete segments (the precast building), uncovered storage areas for raw material and segments, vehicle parking areas and associated offices and workshops.

An environmental impact statement was prepared for Snowy 2.0 Segment Factory (*Proposed Segment Factory - Environmental Impact Statement* (Segment Factory EIS)) to assess the impact of the project on the environment.

The Segment Factory EIS was submitted to Department of Planning, Industry and Environment in September 2019 and was publicly exhibited between 10 October 2019 and 6 November 2019. A total of 33 submissions were received, including 26 from the public, six from NSW government agencies and one from Snowy Monaro Regional Council. Of the 26 public submissions, 22 related to Snowy 2.0 Main Works rather than the Segment Factory. In December 2019, the response to submissions was prepared (*Segment Factory Response to Submissions*) (Submissions Report or RTS). Following consideration of this document and the Segment Factory EIS, approval was granted by the Minister for Planning and Public Spaces on 31 March 2020, through issue of Infrastructure Approval SSI 10034.

The Segment Factory EIS was prepared to assess the impact of these works on the environment, and included an assessment of noise impacts within Chapter 5.5 and Appendix G.

1.3. Approved Project

Construction of the Segment Factory was completed in September 2021. Minor construction activities may occur during the operation of the Segment Factory.

The operation of the Segment Factory includes the fabrication of precast tunnel segments utilising steel moulds. Key elements in the fabrication of the precast tunnel segments include carousel production cycle, curing of segments, repair works, packer placement, quality control, and precast tunnel segment handling and transport.

The CBP is located on the southern portion of the site and includes a conveyor system, cement and silo slags and adjacent aggregate and sand storage areas for mixing to form concrete prior to insertion into steel moulds.

1.4. Management System

The overall environmental management for the Segment Factory is described in the Environmental Management Strategy (EMS).

This Noise Monitoring and Management Plan (NMMP) forms part of Future Generation's environmental management framework for the project as described in the EMS. This plan aims to transfer the relevant requirements of the Approval and Licence documents into a management plan which can be practically applied on the project site.

Ongoing revisions to this plan will occur in accordance with Section 1.7 of the EMS, and as required by condition 2 of schedule 4 of the Infrastructure Approval. Circumstances requiring a review, and if necessary, revision of this plan include submission of incident reports or audit reports, approval of modifications to the conditions of Approval and directions of the Planning Secretary under condition 2 of schedule 4.

1.5. Purpose

This NMMP has been prepared to address the requirements of the Infrastructure Approval (SSI-10034) (the Approval) issued for Snowy 2.0 Segment Factory on the 31 March 2020, the Segment Factory EIS,the revised environmental management measures (REMMs) within the Submissions Report and the Environmental Protection Licence 21419 (EPL).

The key objective of the NMMP is to describe the noise management measures and monitoring program that will be implemented to ensure that noise impacts are minimised and within the project conditions of Approval. To achieve this, Snowy Hydro and Future Generation will:

- ensure appropriate measures are implemented to address the relevant conditions of Approval, the REMMs listed within the Submissions Report and the EPL, as detailed within Section 3 of this plan;
- ensure reasonable and feasible measures are implemented during construction and operation to avoid or minimise noise impacts; and
- establish a monitoring program to assess impacts on the surrounding environment.

The body of this plan outlines the management and monitoring of potential impacts associated with the operation of the Segment Factory.

1.6. Noise Impact Assessment

1.6.1. Operational Noise

Operation of the proposed Segment Factory is expected to be 24 hours a day, seven days a week.

Operational noise associated with the Segment Factory was predicted to meet the *Noise Policy for Industry* (EPA, 2017) (NPfI) requirements for all assessment locations with the exception of one residential location (R16) during the evening and night periods, with a negligible exceedance of 2dB predicted. Intermittent night activities were predicted to satisfy the sleep disturbance screening criteria of L_{Amax} 52 dBA at all residential locations.

1.6.2. Traffic Noise

Assessment of day ($L_{Aeq,15hr}$) traffic predictions confirmed compliance with the <2dB allowance criterion for all road segments likely to be used by vehicles associated with the Segment Factory.

The assessment for the night period ($L_{Aeq,9hr}$) confirmed compliance with the <2 dB allowance criterion for Polo Flat Road (south) and Monaro Highway (south).

Monaro Highway (north) and Polo Flat Road (north) had predicted increases exceeding the RNP road traffic noise levels requirements as existing traffic noise levels were above the baseline criterion of $L_{Aeq,9hr}$ 55 dB(A). These exceedances relate to a discrete period of 2-3 months at peak traffic generation and include an additional 20% allowance factor applied to the project traffic volumes. For the majority of the project life outside of the peak period, average heavy vehicle (HV) volumes are typically 50% lower and would result in compliance with RNP assessment requirements.

As a result of utilisation of PBS vehicles for segment transfer capable of carrying nine segments per vehicle, the number of heavy vehicles required for segment transport is reduced significantly. Accordingly, assessment of day (LAeq,15hour) and night (LAeq,9hour) traffic noise predictions confirm compliance with the <2 dB allowance criterion for all road segments likely to be used by vehicles associated with the proposed Segment Factory.

1.7. Consultation Summary

To enable the development of the NMMP, on 16 February 2020, the plan was issued to the relevant stakeholders for review and comment. Additionally, a presentation of plans requiring consultation was undertaken by Future Generation with relevant stakeholders on 21 February 2020.

Between 11 and 13 March 2020, consultation occurred with the nearest residential receivers of the Segment Factory which include:

- R2 – 10 Carlaminda Road, Polo Flat;
- R15 - 130 Carlaminda Road, Cooma;
- R16 - 112 Carlaminda Road, Cooma;
- R17 - 140 Carlaminda Road, Cooma; and
- R18 - 3 Kaiser Street, Cooma.

R2 and R18 are zoned as an industrial site with residences approved by Snowy Monaro Regional Council. This list of residential receivers was based on the noise modelling results provided in the Segment Factory EIS, including those residents identified within Figures 6.1 and 6.2 of the Noise and Vibration Impact Assessment. These figures demonstrate that these residents are within a low noise level contour range (40 - 45 dB(A)) for operational noise in the evening / night.

Comments are summarised in Table 1-1.

Table 1-1: Consultation undertaken for this plan

Date	Consultation	Outcomes
16 February 2020	NMMP submitted for consultation to EPA & SMRC.	Comments received from EPA. EPA comments related to complaints management and reasonable and feasible management measures. Management plan was updated to reflect comments.
21 February 2020	Agency briefing with EPA & SMRC, TfNSW.	-
11-13 March 2020	Residence consultation	No comments regarding noise impacts and management were raised by nearest residential receivers.

2. ENVIRONMENTAL REQUIREMENTS

2.1. Legislation

Legislation relevant to noise management includes:

- *Protection of the Environment Operations Act 1997* (POEO Act); and
- *Protection of the Environment Operations (Noise Control) Regulation 2008* (POEO Noise Control Regulation).

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Appendix A1 of the EMS.

2.2. Conditions of Approval

The following noise management conditions specified under schedule 3 of the Infrastructure Approval are presented in Table 2-1.

Table 2-1: Conditions of approval relevant to noise operational monitoring and management

<table>
<tr><th>Condition</th><th>Requirement</th><th>Where addressed</th></tr>
<tr><td colspan="3">Operating Conditions</td></tr>
<tr><td>Schedule 3
Condition 9 (a)</td><td>The Proponent must ensure:
(a) minimise the road traffic noise of the development.</td><td>Section 6
Traffic Management Plan</td></tr>
<tr><td colspan="3">Noise</td></tr>
<tr><td colspan="3">Operational Noise Limits</td></tr>
<tr><td>Schedule 3
Condition 12</td><td>The Proponent must ensure that noise generated by operation of the development does not exceed the noise limits in Table 2:
Table 2 Noise Limits dB(A)
<table>
<tr><th>Location</th><th>Day
$L_{Aeq,\ (15\ minute)}$</th><th>Evening
$L_{Aeq,\ (15\ minute)}$</th><th>Night
$L_{Aeq,\ (15\ minute)}$</th><th>Night
L_{AMax}</th></tr>
<tr><td>R15</td><td>40</td><td>35</td><td>35</td><td>52</td></tr>
<tr><td>R16</td><td>40</td><td>37</td><td>37</td><td>52</td></tr>
<tr><td>R17</td><td>40</td><td>35</td><td>35</td><td>52</td></tr>
</table>
Note: Noise generated by the development is to be measured in accordance with the relevant procedures and modifications (including certain meteorological conditions) of the Noise Policy for Industry (EPA, 2017) (as may be updated or replaced from time to time). Refer to the plan in Appendix 4 for the location of residential sensitive receivers.</td><td>Section 5 and
Section 7</td></tr>
<tr><td colspan="3">Noise Monitoring Plan</td></tr>
<tr><td>Schedule 13
Condition 13</td><td>Prior to commencing operation, the Proponent must prepare a Noise Monitoring Plan for the development to the satisfaction of the Planning Secretary. This plan must include:
(a) a noise monitoring program for the development with quarterly attended noise monitoring at the nearest residential sensitive receivers to demonstrate compliance with the noise limits in condition 12 in Schedule 3; and
(b) procedures for receiving and addressing complaints from the community about development related noise, including road traffic noise.

Following the Planning Secretary's approval, the Proponent must implement the Noise Monitoring Plan.</td><td>Section 7</td></tr>
</table>

2.3. Revised Environmental Management Measures

Environmental safeguards and management measures are included in the Segment Factory EIS in Section 6.3. During preparation of the Submissions Report, REMMs were developed and are included in Appendix C of the Submissions Report.

The revised environmental management measures relevant to this plan are listed in Table 2-2.

Table 2-2: Revised environmental management measures relevant to operational noise management

Impact	Reference	Revised Environmental Management Measures	Where addressed
Operational noise	NV002	• The EMP would include measures to monitor operational noise levels during commissioning (or within 3 months of operation) to validate the predicted noise levels. The EMS would also include a review of noise mitigation measures and site management to reduce levels where required; and • The residents at assessment location R16 would be notified prior to commencement of operation.	Section 6 Section 7

2.4. Licences and Permits

Environment Protection Licence 21419 has been issued for the Segment Factory for the scheduled activity of Concrete Works as defined under the POEO Act. The EPL details conditions which must be complied with when undertaking the scheduled activity. In May 2022 the Segment Factory EPL was varied in order to include conditions relevant toperation noise monitoring. Variation included:

- Inclusion of noise monitoring conditions to require quarterly noise monitoring
- Inclusion of condition to require a noise compliance assessment report to be submitted to the EPA within 30 days of the completion of the quarterly noise monitoring

Table 2-3 details the Environmental Protection Licence 21419 conditions which are relevant to noise monitoring and demonstrates where these conditions are addressed.

Table 2-3: EPL 21419 conditions relevant to noise monitoring and management

<table>
<tr><th>Condition</th><th>Requirement</th><th>Where addressed</th></tr>
<tr><td>P1.3</td><td>The following points referred to in the table below are identified in this licence for the purpose of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises
Noise/Weather
<table>
<tr><th>EPA identification no.</th><th>Type of monitoring point</th><th>Location description</th></tr>
<tr><td>1</td><td>Noise monitoring</td><td>130 CARLAMINDA ROAD, COOMA, 2630, identified as EPA 1 (R15) on the document titled "EPL 21419 - Polo Flat Segment Factory Premise Map" (EPA reference DOC21/265021-7)</td></tr>
<tr><td>2</td><td>Noise monitoring</td><td>112 CARLAMINDA ROAD, COOMA, 2630. Identified as EPA 2 (R16) on the document titled "EPL 21419 - Polo Flat Segment Factory Premise Map" (EPA reference DOC21/265021-7)</td></tr>
<tr><td>3</td><td>Noise monitoring</td><td>140 CARLAMINDA ROAD, COOMA, 2630. Identified as EPA 3 (R17) on the document titled "EPL 21419 - Polo Flat Segment Factory Premise Map" (EPA reference DOC21/265021-7)</td></tr>
</table></td><td>Section 6.1.1 Noise Monitoring</td></tr>
</table>

<table>
<tr>
<td>L3.1</td>
<td>Noise generated at the premises that is measured at each noise monitoring point established under this licence must not exceed the noise levels specified in Column 4 of the table below for that point during the corresponding time periods specified in Column 1 when measured using the corresponding measurement parameter listed in Column 2.

POINT 1,2,3
<table><tr><th>Time period</th><th>Measurement parameter</th><th>Measurement frequency</th><th>Noise level dB(A)</th></tr><tr><td>Day</td><td>LAeq (15 minute)</td><td>Continuous</td><td>40</td></tr><tr><td>Night</td><td>LAmax</td><td>Continuous</td><td>52</td></tr></table>
POINT 1,3
<table><tr><th>Time period</th><th>Measurement parameter</th><th>Measurement frequency</th><th>Noise level dB(A)</th></tr><tr><td>Evening</td><td>LAeq (15 minute)</td><td>Continuous</td><td>35</td></tr><tr><td>Night</td><td>LAeq (15 minute)</td><td>Continuous</td><td>35</td></tr></table>
POINT 2
<table><tr><th>Time period</th><th>Measurement parameter</th><th>Measurement frequency</th><th>Noise level dB(A)</th></tr><tr><td>Night</td><td>LAeq (15 minute)</td><td>Continuous</td><td>37</td></tr><tr><td>Evening</td><td>LAeq (15 minute)</td><td>Continuous</td><td>37</td></tr></table></td>
<td>Section 4. Noise Criteria</td>
</tr>
<tr>
<td>M6.1</td>
<td>To assess compliance with the noise limits specified within this licence, the licensee must undertake operator attended noise monitoring at each specified noise monitoring point in accordance with the table below.
POINT 2
<table><tr><th>Assessment period</th><th>Minimum frequency in a reporting period</th><th>Minimum duration within assessment period</th><th>Minimum number of assessment period</th></tr><tr><td>Day</td><td>Quarterly</td><td>1.5 hours</td><td>3 consecutive operation days</td></tr><tr><td>Evening</td><td>Quarterly</td><td>30 minutes</td><td>3 consecutive operation days</td></tr><tr><td>Night</td><td>Quarterly</td><td>1 hour</td><td>3 consecutive operation days</td></tr></table>
Note: Attended noise monitoring must occur during each day, evening and night as defined in the Noise Policy for Industry.

Subject to any expressed provision to the contrary in this licence, measurement and analysis of noise required by this licence must be done in accordance with the Approved Methods of the Measurement and Analysis of Environmental Noise in NSW.</td>
<td>Section 6.1.1 Noise Monitoring</td>
</tr>
<tr>
<td>R4.1</td>
<td>A noise compliance assessment report must be submitted to the EPA within 30 days of the completion of the quarterly monitoring. The assessment must be prepared by a competent person and include:
a) an assessment of compliance with noise limits presented in Condition L3.1, and
b) an outline of any management actions taken within the monitoring period to address any exceedances of the limits contained in Condition L3.1</td>
<td>Section 6.6 Reporting</td>
</tr>
</table>

2.5. Guidelines and Standards

The guidelines also considered in the completion of this assessment include:

- NSW Department of Environment Climate Change (DECC) 2009, *Interim Construction Noise Guideline* (ICNG);
- NSW Environment Protection Authority (EPA) 2017, *NSW Noise Policy for Industry* (NPfI);

- NSW Department of Environment Climate Change and Water (DECCW) 2011, *Road Noise Policy* (RNP); and
- Transport for NSW (TfNSW) – *Construction Noise and Vibration Strategy* – April 2019 (CNVS v4.1).

3. EXISTING ENVIRONMENT

The Polo Flat Industrial Area accommodates a range of commercial and industrial land uses including workshops and fabrication, wrecking yards, service station, bulk storage, building materials and concrete batching plant. To the east of the site is the Monbeef meat processing facility and associated feedlots, and a cattle saleyard is located to the south on the corner of Saleyards Road and Monaro Highway.

It is understood that the majority of the existing users within the industrial area have daytime operation hours. The Monbeef facility and saleyards operate 24/7 on a campaign basis, that is a period of intensive activity followed by a period of no activity.

3.1. Noise Assessment Locations and Sensitive Receivers

The Noise and Vibration Impact Assessment (NVIA) (Appendix G of the Segment Factory EIS) identified noise assessment locations which were chosen for the purpose of assessing potential noise impacts. The EIS advised that these locations were selected to represent the range and extent of noise impacts from the site.

The noise assessment locations identified residential locations within 1500 metres of the project that represent catchments or residential areas. No schools, child-care centres, hospitals or similar uses were found to be within 1500 metres of the project. Table 3-1 details the noise sensitive locations with the location identified in Figure 3-1

The majority of noise sensitive receivers are residential areas at a distance of greater than 250 m from the project. Other noise sensitive receivers include industrial sites with residences approved by Snowy Monaro Regional Council.

Table 3-1: Noise assessment locations

ID	Address	Classification	Easting	Northing
R1[1]	14 Warra Street, Cooma	Residential	693057	5989409
R2	10 Carlaminda Road, Polo Flat	Industrial	692758	5987347
R3	103 Bombala Street, Cooma	Residential	691580	5987112
R4	57 Bradley Street, Cooma	Residential	691813	5987775
R5	91 Baron Street, Cooma	Residential	691954	5987213
R6	82 Baron Street, Cooma	Residential	691964	5987291
R7	1 Albert Street, Cooma	Residential	691849	5987683
R8	63 Bradley Street, Cooma	Residential	691798	5987683
R9	1 Short Street, Cooma	Residential	691842	5988048
R10	3 Monaro Highway, Cooma	Residential	691871	5988605
R11	57 Yareen Road, Cooma	Residential	692242	5989152
R12	32 Woolalla Street, Cooma	Residential	692664	5989240
R13	12 Windarra Place, Cooma	Residential	692910	5989259
R14	4 Yamba Crescent, Cooma	Residential	693189	5989323
R15	130 Carlaminda Road, Cooma	Residential	693910	5987127
R16	112 Carlaminda Road Cooma	Residential	693796	5987246
R17	140 Carlaminda Road Cooma	Residential	693796	5987246
R18[1]	3 Kaiser Street	Industrial	693796	5987246

ID	Address	Classification	Easting	Northing
R19[1]	2 Holland Road Cooma	Industrial	693796	5987246
R20[1]	2 Geebung Street Cooma	Industrial	693796	5987246

Notes: 1 - Industrial site (IN1) with residence – residences are prohibited in IN1 zoning Cooma-Monaro Local Environmental Plan 2013. These four residences were approved by Snowy Monaro Regional Council.

3.2. Measured noise levels

As part of the NVIA, unattended noise monitoring was undertaken using a noise logger at four (4) locations representative of the surrounding sensitive receivers (as shown in Figure 3-1) to establish the ambient noise environment. The rating background levels (RBLs) and ambient noise levels are presented in Table 3-2.

Table 3-2: Summary of existing background and ambient noise (NVIA, Table 3.3)

Monitoring location	Period[1]	Rating Background Level (RBL)[2] , dB(A)	Measured $L_{Aeq, period}$ noise level[3], dB(A)
NM1 – 14 Wanna Street, Cooma	Day	35 (30)	47
	Evening	30 (25)	49
	Night	30 (<20)	43
NM2 – The site – southern boundary	Day	35 (32)	50
	Evening	30 (28)	44
	Night	30 (22)	39
NM3 – 103 Bombala Street, Cooma	Day	44	61
	Evening	33	56
	Night	30 (25)	51
NM4 – 57 Bradley Street Cooma	Day	35 (31)	52
	Evening	30 (29)	53
	Night	30 (<20)	40

Notes: 1. Day: 7 am to 6 pm Monday to Saturday; 8 am to 6 pm Sundays and public holidays; Evening: 6 pm to 10 pm; Night: 10 pm to 7 am.

2. The RBL is an NPfI term and is used to represent the background noise level. In accordance with the NPfI, minimum thresholds were adopted in the NVIA (EMM 2019) given measured values were lower. Measured noise levels are provided in brackets () where relevant.

3. The energy averaged noise level over the measurement period and representative of general ambient noise.

4. Noise monitoring location selected for measuring road traffic noise and for LA90 for assessment locations exposed to high traffic volumes

The measured noise levels referenced above are from the NVIA. During preparation of this NMMP it was found that 103 Bombala Street, Cooma is actually located at NM4 (not NM3). Likewise 57 Bradley Street is at NM3. Refer to Figure 3-1.

This does not alter the NMLs as 103 Bombala Street, Cooma (R3) and 3 Monaro Highway, Cooma (R10) are in fact the properties adjacent to the Highway which receive the higher RBL. Therefore the RBL included in Table 3-2 is correct. Refer to note 4 above.

Figure 3-1: Noise assessment locations and sensitive receivers (Source: NVIA (EMM 2019))

4. NOISE CRITERIA

4.1. Operational Noise Criteria

The NVIA considered the *Noise Policy for Industry* (NPfI) to develop appropriate project noise trigger levels (PNTL) following an assessment of the project intrusiveness and project amenity levels. This was undertaken with reference to the measured noise levels in the area, the receiver type and the zoning in the area according to council.

Schedule 3, condition 12 of the Approval and Condition L3.1 of the EPL prescribes noise limits for the operation of the Segment Factory. The operational project noise trigger levels (PNTLs) for day, evening and night periods are presented in Table 4-1.

Table 4-1: Operational PNTLs ($L_{Aeq, 15min}$)

Residential assessment location	Day $LA_{eq, (15\ minute)}$	Evening $LA_{eq, (15\ minute)}$	Night $LA_{eq, (15\ minute)}$	Night LA_{max}
R15	40	35	35	52
R16	40	37	37	52
R17	40	35	35	52

Notes: 1. Day: 7 am to 6 pm Monday to Saturday; 8 am to 6 pm Sundays and public holidays; Evening: 6 pm to 10 pm; Night: remaining periods

4.2. Road Traffic Noise Criteria

The impact on receivers associated with the increased number of vehicle movement on the public road is to be assessed during the construction and operational stages.

Table 4-2 presents the road traffic noise assessment criteria for residential land uses, reproduced from Table 3 of the RNP for road categories relevant to the construction and operation of the Segment Factory. The assessment criteria are assessed externally within 1m of a residential façade.

Table 4-2: Road traffic noise assessment criteria for residential land uses

Road category	Type of project/development	Assessment criteria – dB	
		Day (7 am to 10 pm)	Night (10 pm to 7 am)
Freeway/arterial/sub-arterial roads	Existing residences affected by additional traffic on existing freeway/arterial/sub-arterial roads generated by land use developments.	$L_{Aeq,15hr}$ 60	$L_{Aeq,9hr}$ 55

Notes: 1. Assessed externally, 1m from a residential façade

Section 3.4 of the RNP states that at residential land uses where existing road traffic noise criteria are already exceeded, any increase in total traffic noise level should be limited to 2dB. An increase of up to 2 dB represents a minor impact that is considered barely perceptible to the average person.

Road sections assessed and methodologies used are provided in Table 4-3.

Table 4-3: Road segments considered in noise assessment

ID	Road segment / name	Annual Average Daily Traffic (AADT)	Assessment methodology
Cooma 1	Snowy Mountains Highway (south)	4847	CoRTN / FHWA$_1$
Cooma 2	Monaro Highway (north)	6395	CoRTN / FHWA$_1$
Cooma 3	Polo Flat Road (north)	1862	FHWA
Cooma 4	Polo Flat Road (south)	2169	FHWA
Cooma 5	Monaro Highway (south)	2495	FHWA

5. ENVIRONMENTAL MANGEMENT MEASURES

5.1. Management Measures

A range of environmental requirements and control measures are identified in the Segment Factory EIS, Submissions Report and the draft baseline conditions. Safeguards and management measures will be implemented to avoid, minimise or manage impacts to soils across the site.

Specific safeguards and management measures to address the impacts to the surrounding community and environment from noise are outlined in Table 5-1. The following mitigation measures are applicable to the operation of the project. It should be noted that the construction phase of the project was completed in September 2021.

Table 5-1: Noise management measures

ID	Mitigation Measure / Requirement	When to implement	Responsibility	Source document
General				
PF_NV01	Training will be provided to all project personnel, including relevant sub-contractors on noise management practices including the out of hours work procedure and the requirements from this plan through inductions, toolboxes and targeted training.	All	Future Generation	Good Practice
PF_NV02	Relevant noise management measures from this plan will be included in site environmental documents including for example, Work Method Statements (WMS) and/or Site Environmental Plans (SEPs).	All	Future Generation	Good Practice
Notification prior to operation				
PF_NV03	The residents at assessment location R2, R18, R15, R16 and R17 would be notified prior to commencement of operation.	Operation	Future Generation	REMM NV002
Plant and Equipment				
PF_NV04	All construction plant and equipment used on the site will be, in addition to other relevant requirements be: • maintained in an efficient condition; • operated in a proper and efficient manner; • fitted with properly maintained noise suppression devices (ie mufflers, silencers) where manufacturer's specifications require; • included in a sound power level monitoring program and compared to the assumptions contained in Appendix A.	Construction / Operation	Future Generation	Good Practice
PF_NV05	Mobile plant (e.g. forklifts) used during night-time, outdoor operation of the Segment Factory are to be fitted with mufflers and squawker reversing alarms, as alternatives to tonal alarms.	Operation	Future Generation	Good Practice and in response to DPIE comments
PF_NV06	Where possible, aggregate hoppers within the concrete batch plant will be loaded during the day, in order to reduce night-time noise emissions.	Operation	Future Generation	Good Practice
Working Hours				
PF_NV07	Operation of the project may be undertaken 24 hours, 7 days per week.	Operation	Future Generation	-
Consultation and Complaints Management				

ID	Mitigation Measure / Requirement	When to implement	Responsibility	Source document
PF_NV08	All complaints, including those related to property damage, will be managed in accordance with the Communications Strategy, the EMS and Section 7.3 of the NMMP.	Construction / Operation	Future Generation	Good Practice
Monitoring				
PF_NV09	Operational noise levels will be monitored during commissioning (or within 3 months of operation) to validate the predicted noise levels. A review of noise mitigation measures and site management will occur to reduce levels where required.	Construction / Operation	Future Generation	REMM NV002

6. COMPLIANCE MANAGEMENT

6.1. Monitoring and Inspection

6.1.1. Noise Monitoring

In accordance with schedule 3, condition 12 and 13 of the Approval and conditions P1, L3 and M6 of the EPL, a noise monitoring program has been designed to include noise monitoring at representative locations in the vicinity of the Segment Factory.

Monitoring standards

Operator-attended noise monitoring will be undertaken in accordance with the relevant Australian Standards and EPA guidelines including:

- *AS 1055.1 – 1997 Acoustics – Description and measurement of environmental noise – General procedures*;
- *AS IEC 61672.1 – 2004 Electroacoustics – Sound level meters – Specifications*; and
- *NSW Noise Policy for Industry* (NPfI) (EPA 2017).
- *Approved Methods of the Measurement and Analysis of Environmental Noise in NSW* (EPA 2022)

All acoustic instrumentation used for monitoring under the noise monitoring program will have current NATA or manufacturer calibration certificates.

Noise monitoring program

Proposed noise monitoring is summarised in Table 6-1. The monitoring results will be compared to relevant NMLs in order to assess potential impact.

Table 6-1: Noise monitoring program

Activity	Frequency	Responsibility	Record	Noise criteria table (to determine applicable criteria)
Validation noise monitoring for operational road traffic noise, specifically the impact related to heavy vehicle movements associated with the project	During early stages during commissioning or within 3 months of operation	Site Supervisor / Future Generation Environment Team	Noise monitoring sheet	Table 4-2
Validation noise monitoring for operational noise levels	During early stages during commissioning or within 3 months of operation	Site Supervisor / Future Generation Environment Team	Noise monitoring sheet	Table 4-1
Attended noise monitoring at nearest sensitive receivers	Quarterly	Site Supervisor / Future Generation Environment Team	Noise monitoring sheet	Table 4-1
Attended noise monitoring at nearest sensitive receivers	Where and when complaints are received	Site Supervisor / Future Generation Environment Team	Noise monitoring sheet	Table 4-1

Activity	Frequency	Responsibility	Record	Noise criteria table (to determine applicable criteria)
Noise intensive plant and equipment spot checks	Throughout construction and operation	Site Supervisor / Future Generation Environment Team	Noise monitoring sheet	Table A1 Table A2 Table A3

In accordance with EPL Condition M6.1 Future Generation's Environmental Site Representative or a suitably trained person will undertake the attended noise monitoring at Point 2 in accordance with the Table 6-2 below.

Table 6-2: EPL noise monitoring frequency for Point 2

Assessment Period	Minimum frequency in a reporting period	Minimum duration within assessment period	Minimum number of assessment period
Day	Quarterly	1.5 hours	3 consecutive days
Evening	Quarterly	30 minutes	3 consecutive days
Night	Quarterly	1 hour	3 consecutive days

In accordance with the CoA operator-attended (15-minute) noise measurements will be completed during day, evening and night at locations R15-R17..

In accordance with the NPfI, noise monitoring should not be conducted during rain events or when average wind speed is greater than of 5 m/s at microphone height. The exception is where it can be shown that wind-induced noise on the microphone and/or sound levels due to rainfall, are at least 10 dB below the noise levels under investigation. In any case, details of the meteorology are to be measured during the noise monitoring, particularly during the evening and night campaigns.

Instrumentation

All acoustic monitoring equipment shall meet the requirements of AS IEC 61672.1 – 2004 'Electroacoustics – Sound level meters – Specifications' and carry current NATA or manufacturer calibration certificates. A minimum Class 2 instrument is required. Instrument calibration shall be checked before and after each measurement survey, with the variation in calibrated levels not exceeding ±0.5 dB.

Noise monitoring locations

- The proposed noise monitoring locations are indicated in Table 6-3, Figure 6-1 and Figure 6-2.

Validation noise monitoring will be undertaken at the nearest potentially affected residential (and non-residential) receivers. The closest monitoring locations used for the EIS Noise and Vibration Assessment were directly within the Segment Factory yard (NM2), with the next closest (NM1) located approximately 1 kilometre away. It is therefore considered to be more appropriate to undertake validation monitoring at the nearest potentially affected receivers, where validation of actual noise levels experienced, may be more relevant.

Quarterly attended monitoring will also be undertaken at the nearest potentially affected receivers.

Traffic noise monitoring will be undertaken at the locations monitored in the Segment Factory EIS Noise and Vibration Assessment.

Table 6-3: Noise monitoring locations

Monitoring Type	Location	Justification
Validation noise monitoring for operational noise levels	R15, R16, R17 (Figure 7-1)	These are the nearest potentially affected residential (and non-residential) receivers. The closest monitoring locations used for the EIS are either directly within the Segment Factory yard or approximately 1 kilometre away.
Validation noise monitoring for operational road traffic noise, specifically the impact related to heavy vehicle movements associated with the project	Cooma 1 – Cooma 5 (Figure 7-2)	These monitoring locations were used in the EISs' Noise and Vibration Assessment.
Quarterly attended noise monitoring at nearest sensitive receivers	R15, R16/EPL Point 2, R17 (Figure 7-1)	These are the nearest potentially affected residential (and non-residential) receivers. The closest monitoring locations used for the EIS are either directly within the Segment Factory yard or approximately 1 kilometre away.

Figure 6-1: Noise monitoring locations (validation and quarterly monitoring)

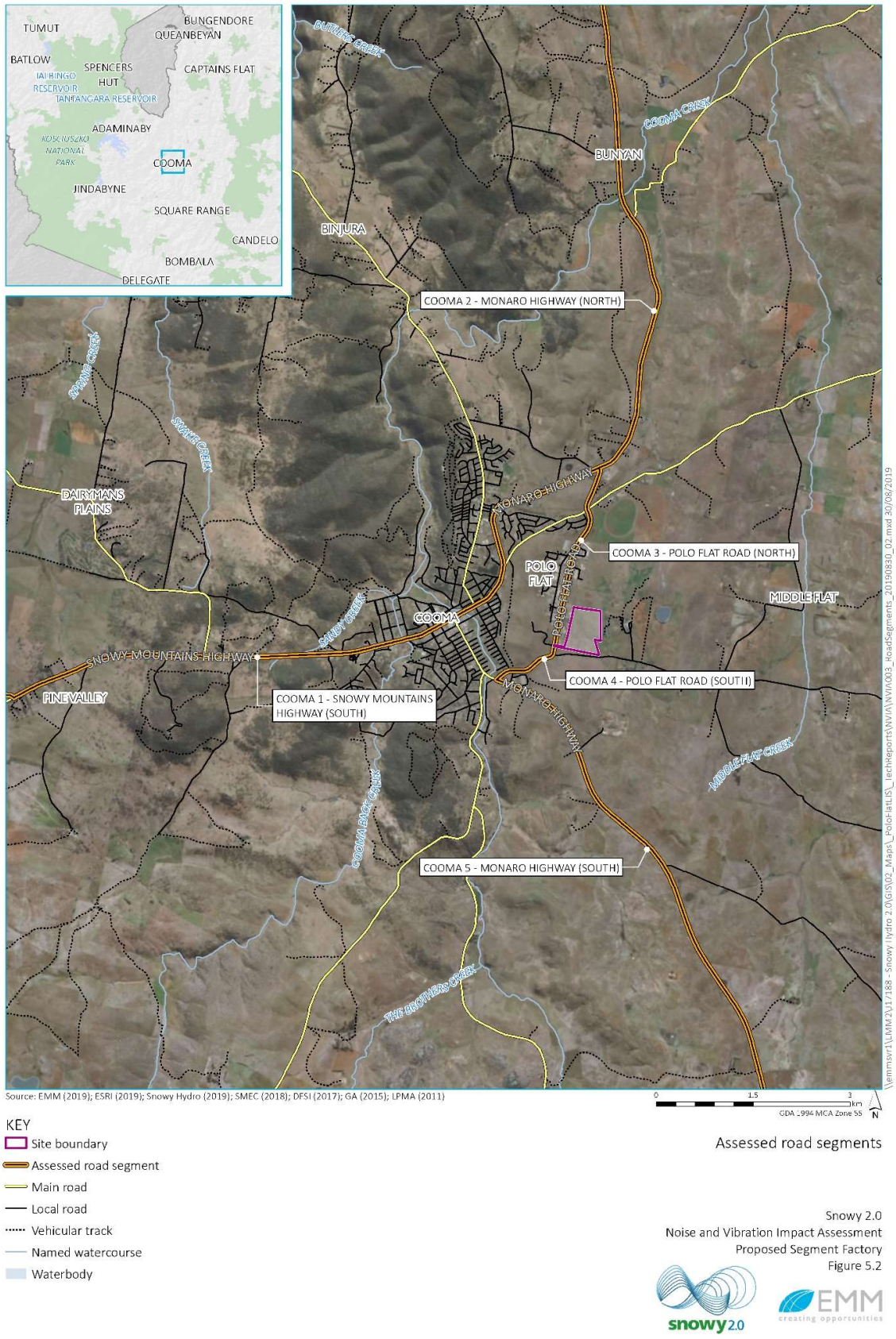

Figure 6-2: Traffic noise monitoring locations

6.1.2. Data Analysis

The $L_{Aeq,15min}$ noise level contributions from the operation of the Segment Factory as well as the overall ambient noise levels together with weather conditions at the time of monitoring shall be reported as soon as practical following the surveys.

The measured noise levels shall be evaluated and assessed against the relevant NMLs. Noise exceedances may be determined by:

- post analysis of audio recordings or 1/3 octave centre frequency band data;
- direct measurement against the NMLs;
- operator estimated $L_{Aeq,15min}$ contribution;
- operator estimated L_{Amax} contribution;
- by calculation from near field measurements;
- by measurement at the receiver or a representative location; or
- a combination of any or all the above methods as approved by the EPA or in accordance with the NPfI.

6.2. Noise Incidents

Where actual noise levels exceed the predicted worst-case levels or the NMLs (whichever is the higher), the source of excessive noise generation will be identified, and any additional feasible and reasonable management measures available will be implemented to either reduce noise emissions or reduce the impacts on receivers.

Additional attended monitoring measurements will be utilised to investigate and validate noise emissions in relation to noise complaints or to determine compliance with the Approval conditions where potential non-compliances have been identified. Where monitoring indicates an exceedance of the relevant noise criteria as a result of the Segment Factory activities, immediate measures to reduce the relevant noise source will be implemented.

The results of noise monitoring and any exceedance will be reported as soon as possible following the monitoring or if further analysis is required, as soon as practicable after analysis. Details on the noise related incident will be reported as soon as possible in accordance with Section 8 of the EMS.

6.3. Complaints

In line with the project EMS, a complaints management system including the complaints register will be maintained by Snowy Hydro and the Future Generation. Where a noise complaint is received, the following actions will be implemented:

- complaints will be investigated / actioned immediately following the complaint being received;
- details of the complaint will be recorded to investigate the likely noise emission source;
- complainants will be responded to verbally within two (2) hours from the time contact is received or at least by the end of the working day;
- where noise emissions are identified to be due to the Segment Factory activities, attended noise monitoring will be undertaken;
- where it is confirmed that noise emissions are above the relevant noise criteria, immediate mitigations measures will be implemented;

- the complainant will be advised of the action taken in response to the complaint;
- all enquiries / complaints will be recorded daily in a complaints register;
- enquiries received for the duration of the project will be responded to verbally within 24 hours from the time contact is received. An enquiry received OOH will be responded to on the next working day;
- all environmental-related complaints such as those relating to noise, water, or dust must be forwarded to the Future Generation Environmental Manager.

The community and stakeholder engagement staff will attend to enquiries and complaints received through the enquiries and complaints information line, project email address, from letters mailed to the project team, during community meetings or through construction / site staff.

6.4. Training

All site personnel will undergo the Future Generation site induction training relating to noise management issues.

The induction training will address elements related to noise management including:

- existence and requirements of this NMMP;
- relevant legislation;
- location of sensitive receivers;
- roles and responsibilities for noise management; and
- noise mitigation and management measures.

Further details regarding the staff induction and training are outlined in Section 6 of the EMS.

6.5. Auditing

Audits will be undertaken to assess the effectiveness of the management measures, compliance with this NMMP, the conditions of Approval, Segment Factory EIS, Submissions Reports and other relevant approvals, licences and guidelines.

Audit requirements are detailed in Section 9.3 of the EMS.

6.6. Reporting

Reporting will include a noise compliance assessment report that will be submitted to the EPA within 30 days of the completion of the quarterly monitoring. The assessment will be prepared by a competent person and include an assessment f compliance and outline any management actions taken within the monitoring peris to address any exceedances of condition/licence limits. Reporting requirements and responsibilities are documented in the Section 9.4 of the EMS.

APPENDIX A –OPERATIONAL EQUIPMENT SOUND LEVELS

Table A1: Equipment sound power levels and quantity used in the EIS Noise and Vibration assessment

Equipment item	Quantity	Sound power level, dB, $L_{Aeq,15min}$ (per single item)
Operational		
Front End Loader (CAT 972H, Hyundai HL770 7A or equivalent)	1	105
Fork-Lift (Hyundai 250D-9 or equivalent)	4	103
Low loader	1	103
Boiler	2	85
Semi-Trailer	2	103
Cement delivery (compressor)	1	104
Insulated concrete batching Plant	91 (external noise level)	
Office/Warehouse	70 (space averaged internal noise level)	
Segment manufacturing	78 (space averaged internal noise level)	
Segment curing	75 (space averaged internal noise level)	
Metal fabrication – rebar cages	80 (space averaged internal noise level)	

Table A2: Operational scenarios used in the EIS NVIA (Day)

Scenario	Description	Utilisation (%) Per 15min
Day	Front End Loader (x1):	
	Aggregate pile	70
	Load hopper and storage bunkers	30
	Fork-Lift (x4):	
	2 x fork trucks in northern storage area	50
	1 x fork truck loading low loader (north)	50
	1 x fork truck stacking segments (south-east)	50
	Low loader:	
	Loaded on northern side of building	30
	Traversing through northern storage	30
	Insulated Concrete batching	100
	Boiler (x2)	100
	Semi-Trailer (x1):	
	Distribution of precast segments - route through site	50
	Trailer parking	20
	Low Loader -route from north side of building to storage area	25
	Office/Warehouse	100

Scenario	Description	Utilisation (%) Per 15min
	Segment manufacturing	100
	Segment curing	100
	Metal fabrication – rebar cages	100
	Cement delivery (compressor) – west of cement silos	100

Table A3: Operational scenarios used in the EIS NVIA (Night)

Scenario	Description	Utilisation (%) Per 15min
Evening and Night	Front End Loader (x1) – CBP area:	
	Aggregate pile	30
	Load hopper and storage bunkers	70
	Fork-Lift (x4):	
	2 x fork trucks in northern storage area	30
	1 x fork truck loading low loader (north)	30
	1 x fork truck stacking segments (south-east)	30
	Low loader:	
	Loaded on northern side of building	25
	Traversing through northern storage	25
	Insulated Concrete batching	100
	Boiler (x2)	100
	Semi-Trailer (x1):	
	Distribution of precast segments - route through site	50
	Trailer parking	20
	Low Loader -route from north side of building to storage area	25
	Office/Warehouse	100
	Segment manufacturing	100
	Segment curing	100
	Metal fabrication – rebar cages	100
	Cement delivery (compressor) – west of cement silos	100

APPENDIX B – NOISE IMPACT ASSESSMENTS

Assessment of Impact

Operational Noise

The NVIA predicted operational noise levels for day and evening / night periods as shown in Table B2.

Noise modelling has demonstrated the project noise trigger levels (PNTLs) are satisfied at all assessment locations during day operations. Exceedance of 2 dB of the PNTL has been identified for R16 during evening / night operations. Under the definitions under Section 4.2 of NPfI a 2dB exceedance would be considered 'negligible', would not be discernible by the average listener and therefore would not warrant receiver-based treatments or controls.

Table B2: Predicted noise levels at residences

Receiver ID	Classification	Period	Highly noise affected NML, dB	Predicted operational noise level, dB LAeq,15min	Compliance with PNTL
R1	Residential	Day	40	27	Yes
		Evening / Night	35	25	Yes
R2[1]	Industrial	Day	70	44	Yes
		Evening / Night		43	Yes
R3	Residential	Day	40	26	Yes
		Evening / Night	35	25	Yes
R4	Residential	Day	40	26	Yes
		Evening / Night	35	24	Yes
R5	Residential	Day	40	27	Yes
		Evening / Night	35	26	Yes
R6	Residential	Day	40	26	Yes
		Evening / Night	35	25	Yes
R7	Residential	Day	40	25	Yes
		Evening / Night	35	23	Yes
R8	Residential	Day	40	25	Yes
		Evening / Night	35	23	Yes
R9	Residential	Day	40	25	Yes
		Evening / Night	35	23	Yes
R10	Residential	Day	40	27	Yes
		Evening / Night	35	26	Yes
R11	Residential	Day	40	26	Yes
		Evening / Night	35	25	Yes
R12	Residential	Day	40	27	Yes
		Evening / Night	35	26	Yes

Receiver ID	Classification	Period	Highly noise affected NML, dB	Predicted operational noise level, dB LAeq,15min	Compliance with PNTL
R13	Residential	Day	40	30	Yes
		Evening / Night	35	29	Yes
R14	Residential	Day	40	29	Yes
		Evening / Night	35	27	Yes
R15	Residential	Day	40	36	Yes
		Evening / Night	35	34	Yes
R16	Residential	Day	40	39	Yes
		Evening / Night	35	37	No (+2dB)
R17	Residential	Day	40	35	Yes
		Evening / Night	35	33	Yes
R18[1]	Industrial	Day	70	38	Yes
		Evening / Night		36	Yes
R19[1]	Industrial	Day	70	31	Yes
		Evening / Night		30	Yes
R20[1]	Industrial	Day	70	31	Yes
		Evening / Night		30	Yes

Notes: 1: Industrial site (IN1) with residence – residences are prohibited in IN1 zoning Cooma-Monaro Local Environmental Plan 2013. These residences were approved by Snowy Monaro Regional Council

Sleep Disturbance

As shown in Table B3, ongoing operational noise from the Segment Factory is predicted to be below the sleep disturbance screening criteria of 40 dBA $L_{Aeq,15min}$ and on this basis no sleep disturbance impact is expected at residences during night-time operational activities.

Further assessment and specific mitigation are therefore not required.

Table B3: Predicted maximum noise levels at receivers

Receiver ID	Location	Sleep disturbance screening criteria, dB	Predicted intermittent noise level, dB
		L_{Amax}	L_{Amax}
R1	14 Warra Street, Cooma	52	38
R2	10 Carlaminda Road, Polo Flat	52	57
R3	103 Bombala Street, Cooma	52	37
R4	57 Bradley Street, Cooma	52	35
R5	91 Baron Street, Cooma	52	36
R6	82 Baron Street, Cooma	52	34
R7	1 Albert Street, Cooma	52	36

Receiver ID	Location	Sleep disturbance screening criteria, dB	Predicted intermittent noise level, dB
		L_{Amax}	L_{Amax}
R8	63 Bradley Street, Cooma	52	35
R9	1 Short Street, Cooma	52	37
R10	3 Monaro Highway, Cooma	52	38
R11	57 Yareen Road, Cooma	52	37
R12	32 Woolalla Street, Cooma	52	37
R13	12 Windarra Place, Cooma	52	41
R14	4 Yamba Crescent, Cooma	52	39
R15	130 Carlaminda Road, Cooma	52	47
R16	112 Carlaminda Road Cooma	52	50
R17	140 Carlaminda Road Cooma	52	44
R18	3 Kaiser Street	52	54
R19	2 Holland Road Cooma	52	43
R20	2 Geebung Street Cooma	52	45

Notes: 1. Residential property owned by the proponent however has been assessed as a residential receiver.

Road Traffic Noise - Without PBS Vehicles

Traffic volumes were provided by Future Generation to represent the peak generation of light (LV) and heavy vehicles (HV) associated with the Segment Factory.

Volumes were distributed 80% day (7am to 10pm) and 20% night (10pm to 7am) in accordance with Future Generation expectations. It is noted that peak volumes incorporate an additional 20% allowance safety factor adopted by Future Generation.

Assessment of day ($L_{Aeq,15hr}$) traffic predictions (Table B4) confirmed compliance with the <2dB allowance criterion for all road segments likely to be used by vehicles associated with the Segment Factory.

Table B4: Road traffic noise predictions, Day (7am to 10pm)

Receiver ID	Road segments	Existing movements			Existing plus project movements			Noise level increase due to the Project $L_{Aeq,15hour}$
		Total	%HV	$L_{Aeq,15hr}$	Total	%HV	$L_{Aeq,15hr}$	
Cooma 1	Snowy Mountains Highway (south)	4684	12	62.5	5131	14	62.7	0.1
Cooma 2	Monaro Highway (north)	6150	23	66.4	6674	24	66.5	0.2
Cooma 3	Polo Flat Road (north)	1744	43	67.4	2103	44	68.3	0.9

Cooma 4	Polo Flat Road (south)	2041	49	59.4	2375	44	59.4	0.0
Cooma 5	Monaro Highway (south)	2391	39	53.5	2493	48	53.8	0.3

Assessment of night ($L_{Aeq,9hr}$) traffic predictions (Table B5) confirms compliance with the <2 dB allowance criterion for Polo Flat Road (south) and Monaro Highway (south).

For Snowy Mountains Highway (south) predicted levels exceed the <2dB allowance, however the noise level is less than the baseline criterion of 55 dB(A) and accordingly satisfied the NSW RNP requirements.

Polo Flat Road (north) is predicted to experience increased road traffic noise levels by 2.2 dB, resulting in an exceedance of RNP requirements given existing traffic noises level are above the baseline criterion of 55 dB(A). The 0.2 dB exceedance of the <2 dB allowance criterion for Polo Flat Road (north) occurs during proposed peak traffic generation only.

It is important to note that peak volumes are anticipated for a discrete period of 2-3 months. For most of the project life outside of this peak period, average daily volumes are typically 30% lower for LV and 50% lower for HV and would comply with the RNP requirements.

Table B5: Road traffic noise predictions, Night (10pm to 7am)

Receiver ID	Road segments	Existing movements			Existing plus project movements			Noise level increase due to the Project $L_{Aeq,15hour}$
		Total	%HV	$L_{Aeq,15hr}$	Total	%HV	$L_{Aeq,15hr}$	
Cooma 1	Snowy Mountains Highway (south)	196	14	49.9	231	24	52.6	2.7
Cooma 2	Monaro Highway (north)	239	30	55.9	307	32	57.3	1.3
Cooma 3	Polo Flat Road (north)	118	55	59.0	200	54	61.2	2.2
Cooma 4	Polo Flat Road (south)	128	59	50.3	181	41	50.4	0.1
Cooma 5	Monaro Highway (south)	104	45	42.7	109	43	42.7	0.0

Road Traffic Noise - With PBS Vehicles

As a result of utilisation of PBS vehicles for segment transfer capable of carrying nine segments per vehicle, the number of heavy vehicles required for segment transport in reduced significantly. Accordingly, assessment of day (LAeq,15hour) and night (LAeq,9hour) traffic noise predictions confirm compliance with the <2 dB allowance criterion for all road segments likely to be used by vehicles associated with the proposed Segment Factory.

Table B6: Road traffic noise predictions, Day (7am to 10pm)

Receiver ID	Road segments	Existing movements			Existing plus project movements			Noise level increase due to the Project $L_{Aeq,15hour}$
		Total	%HV	$L_{Aeq,15hr}$	Total	%HV	$L_{Aeq,15hr}$	
Cooma 1	Snowy Mountains Highway (south)	4684	12	62.5	4707	13	62.6	0.1
Cooma 2	Monaro Highway (north)	6150	23	66.4	6343	23	66.5	0.1
Cooma 3	Polo Flat Road (north)	1744	43	67.4	2002	42	67.9	0.6
Cooma 4	Polo Flat Road (south)	2041	49	59.4	2255	44	59.4	0.0
Cooma 5	Monaro Highway (south)	2391	39	53.5	2412	38	53.8	0.3

Assessment of day ($LA_{eq,15hour}$) traffic noise predictions confirm compliance with the <2dB allowance criterion for all road segments likely to be used by vehicles associated with the Segment Factory.

Table B7: Road traffic noise predictions, Night (10pm to 7am)

Receiver ID	Road segments	Existing movements			Existing plus project movements			Noise level increase due to the Project $L_{Aeq,15hour}$
		Total	%HV	$L_{Aeq,15hr}$	Total	%HV	$L_{Aeq,15hr}$	
Cooma 1	Snowy Mountains Highway (south)	196	14	49.9	213	17	51.0	1.1
Cooma 2	Monaro Highway (north)	239	30	55.9	289	28	56.5	0.5
Cooma 3	Polo Flat Road (north)	118	55	59.0	183	50	60.4	1.4
Cooma 4	Polo Flat Road (south)	128	59	50.3	181	41	50.4	0.1
Cooma 5	Monaro Highway (south)	104	45	42.7	109	43	42.7	0.0

Assessment of night ($LA_{eq,9hour}$) traffic noise predictions confirm compliance with the <2dB allowance criterion for all road segments likely to be used by vehicles associated with the Segment Factory.