

RAVENSWORTH OPEN CUT

GLENCORE



Ravenstworth Complex Noise Management Plan

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1. Introduction

1.1 Background

The Ravensworth Complex is a coal mining operation located between the townships of Muswellbrook and Singleton in the Upper Hunter Valley region of New South Wales (NSW). Ravensworth Complex is comprised of the Ravensworth Open Cut (ROC) and the Ravensworth Coal Handling and Preparation Plant (RCHPP) and is a wholly owned subsidiary of Glencore Coal Assets Australis Pty Ltd (GCAA) (refer to **Figure 1.1**).

Ravensworth Complex is managed in accordance with the Project Approval (PA 09_0176) (as modified) for the Ravensworth Complex Project (the Project), which was granted under the former Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Project consolidated a number of active and former open cut mines including Ravensworth West, Narama, Cumnock, Ravensworth South and Ravensworth No. 2. The Project also facilitated the expansion of open cut mining activities, including the new Ravensworth North mining area.

PA09_0176 has provided for the integration of operational aspects of the mining operations in the area, allowing for a consistent and integrated approach to environmental management and mine planning (refer to **Section 1.2**). The Ravensworth Complex is committed to implementing continued mining operations in the context of updated and contemporary environmental management requirements.

The RCHPP incorporates a coal handling and preparation plant (CHPP) and coal terminal. The RCHPP is used to beneficiate and transport coal extracted from Ravensworth Open Cut and Ravensworth Underground Mine (RUM).

ROC and RUM are collectively referred to as the Ravensworth Complex. RUM is managed under a separate development consent (DA 104/96) granted under the EP&A Act. RUM has been under care and maintenance since October 2014.

The Ravensworth Complex is shown in **Figure 1.2**. A number of company entities and joint venture partners are responsible for managing the operations, which are undertaken at the respective facilities that comprise the Ravensworth Complex. For the purpose of this management plan, these respective entities will collectively be referred to as the Ravensworth Complex, with all activities ultimately being undertaken by GCAA managed businesses.

Figure 1.1 Locality Plan

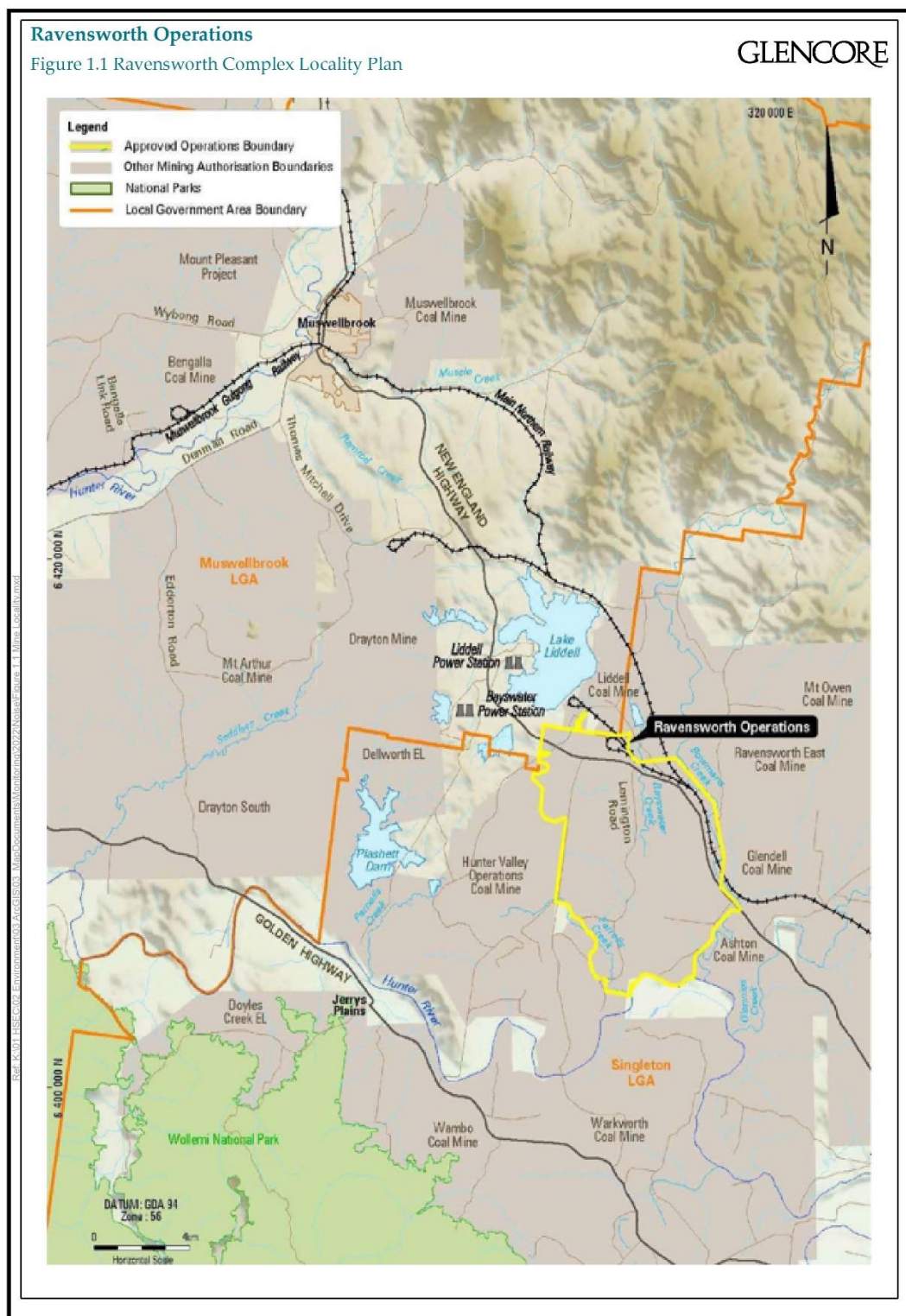
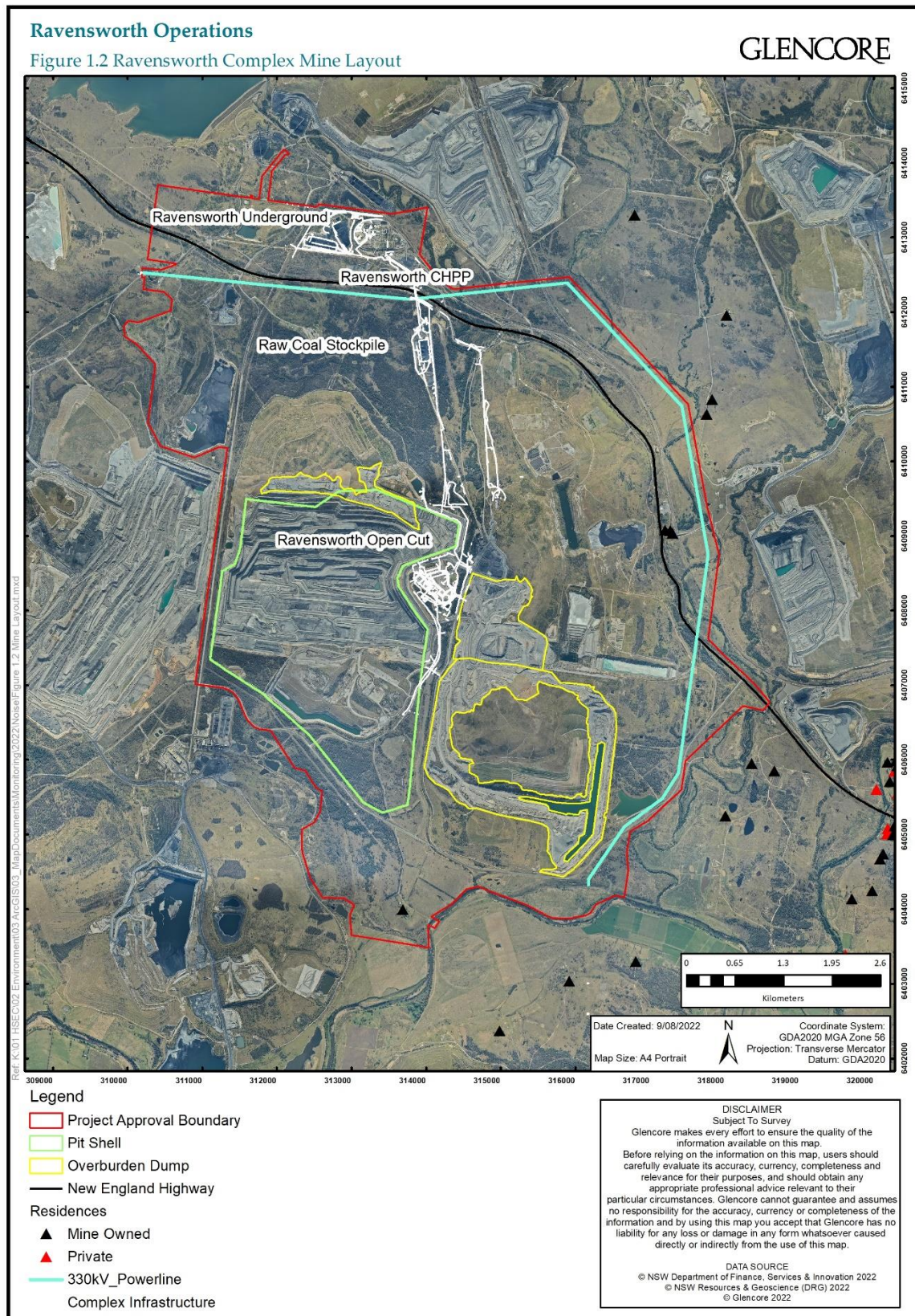


Figure 1.2 Ravensworth Mine Complex Layout



1.2 Project Description

A detailed description of the Ravensworth Complex project as approved under PA09_0176, is provided in Section 1.2 of the Environmental Assessment (EA) (Umwelt 2010). In brief, the Ravensworth Complex comprises operation of the following (refer to **Figure 1.2**):

- A multi-seam open cut mining operation within an area west of Bayswater Creek, known as the Ravensworth North Pit and an area to the east known as Narama West;
- The current Narama Mine, Narama West Mining areas, Ravensworth West Mine, Cumnock No. 1 open cut and the RUM;
- The mine voids associated with the former Ravensworth South and Ravensworth No. 2 mines;
- The RCHPP facility which is located adjacent to the RUM pit-top facility;
- Coal handling, crushing and stockpiling facilities;
- Water management, supply and distribution infrastructure;
- Handling and placement of overburden (rock);
- Mine access road from New England Highway, internal access roads and haul roads;
- Infrastructure including offices, staff amenities, workshop, conveyors, and ancillary services; and
- A rail spur, rail loop and rail loading infrastructure for the transport of all product coal.

Mining operations, coal handling and washing, rail load out and all associated activities will operate on a 24 hours per day, seven days per week basis.

1.2.1 Mining Method

The primary mining method at the Ravensworth Complex will be open cut mining at the Ravensworth Complex using mining trucks and shovels operation. Dump trucks will haul Run-of-Mine (ROM) coal to the coal handling facilities along haul roads. The general mining sequence will include the stripping of topsoil, removal of overburden, extraction of coal resource, overburden emplacement and progressive rehabilitation.

1.2.2 Operating Hours and Equipment Fleet

The Ravensworth Complex has approval to operate 24 hours per day seven days per week, provided it manages its operations to meet the noise criteria outlined within the PA09_0176 (refer to **Section 4.1**). Blasting will typically be undertaken between the hours of 9:00 am and 5:00 pm Monday to Saturday. No blasting will be undertaken on Sundays or public holidays or at any other time without the written approval of the Secretary.

The potential for noise impacts from the Ravensworth Complex was identified during the EA (**Section 1.7**). **Table 1.1** provides indicative operational noise sources associated with plant and infrastructure operated by the Ravensworth Complex. An overview of the noise assessment findings can be found in Appendix 5 of the EA.

Table 1.1 Indicative Operational Noise Sources

Equipment	No. of Equipment
1000 tonne Excavator (6090)	3
560 tonne Excavator (6060)	2
400 tonne Excavator (6040)	4
Wheel Loader (L1850)	2
Wheel Loader (994)	1
Rubber Tyre Dozer	3
Haul Truck 350 tonne	23
Haul Truck 180 tonne	31
Bulldozers	16
Bulldozers (CHPP)	4
Grader	6
Fuel Cart	3
Drill	6
Water Cart	5
Front End Loader	1

Note 1: The above schedule of equipment is typical of the equipment to be used at the Ravensworth Complex and is considered indicative rather than mandatory. The actual performance requirements of the equipment will be determined based on final equipment selection and how the subsequent mining operation will meet the relevant noise criteria.

The introduction of additional equipment or utilisation of equipment listed in **Table 1.1** will be managed through the change management process detailed in **Section 5.5**.

RUM has been in Care and Maintenance since October 2014.

1.3 Purpose and Scope

This Noise Management Plan (NMP) has been prepared for the Ravensworth Complex in accordance with PA09_0176 and DA 104/96. The NMP provides a description of the measures to be implemented by the Ravensworth Complex to mitigate noise impacts and to detail noise monitoring requirements associated with the operation. The purposes of the NMP are to:

- Provide Ravensworth Complex employees and contractors with a clear and concise description of their responsibilities regarding noise management at the Ravensworth Complex;
- Address the relevant conditions and requirements of the Development Approval 104/96 Project Approval 09_0176, including Schedule 3 Condition 9, the Statement of Commitments, legislative commitments and guidelines relevant to this document as well as address the relevant requirements of Environmental Protection Licence (EPL) 2652;
- Describe the measures to be implemented to monitor noise emissions from the operations against relevant regulatory criteria;
- Provide a mechanism for assessing the effectiveness of the noise monitoring program; and

- Provide mechanisms for the establishment of best practice with respect to minimising noise emissions and impacts.

This NMP has also been prepared in consideration of GCAA's *11.11 Noise Management* protocol.

1.4 Integration of Ravensworth Underground Mine with Ashton Underground Mine

The Ashton Underground Mine and the RUM share a common mining lease boundary and the approved underground mining areas are separated (at their closest) by approximately 45 metres.

The Department of Planning and Environment (DPE) approved Modification 11 to the Ashton Coal Project Development Consent DA-309-11-2001-i and Modification 10 to the RUM Development Consent DA 104/96 on 6 July 2022. These modifications allow for the integration of the two neighbouring underground mines and enable Ashton Coal Operations Pty limited (ACOL) to access and extract approved but unmined coal resources from a portion of the RUM (**Figure 1.3**). The modifications allow for connections to be made between the two neighbouring mines via non-subsiding first workings. ACOL will utilise its existing longwall mining equipment and employees to mine the Pikes Gully and Middle Liddell coal seams at the RUM.

ACOL will handle, process and transport coal from the RUM in the same manner it handles coal from its Ashton Underground Mine. Run of Mine (ROM) coal will be transferred via underground conveyors to the Ashton Mine Complex and through to the Ashton pit top, via its existing coal clearance system. ROM coal will be processed at Ashton's CHPP prior to being loaded onto trains for transportation to market using the existing rail infrastructure.

Rejects and tailings generated from the processing of the RUM ROM coal will be emplaced in the existing North East Open Cut void and Ravensworth Void 4 Tailings Dam.

Water and gas from the RUM will also be transferred to the Ashton Mine Complex to be managed within the existing water and gas management system.

The area of the RUM that will be managed and operated by ACOL under the RUM Development Consent DA 104/96 is shown on **Figure 1.3** (referred to as the ACOL-operated RUM).

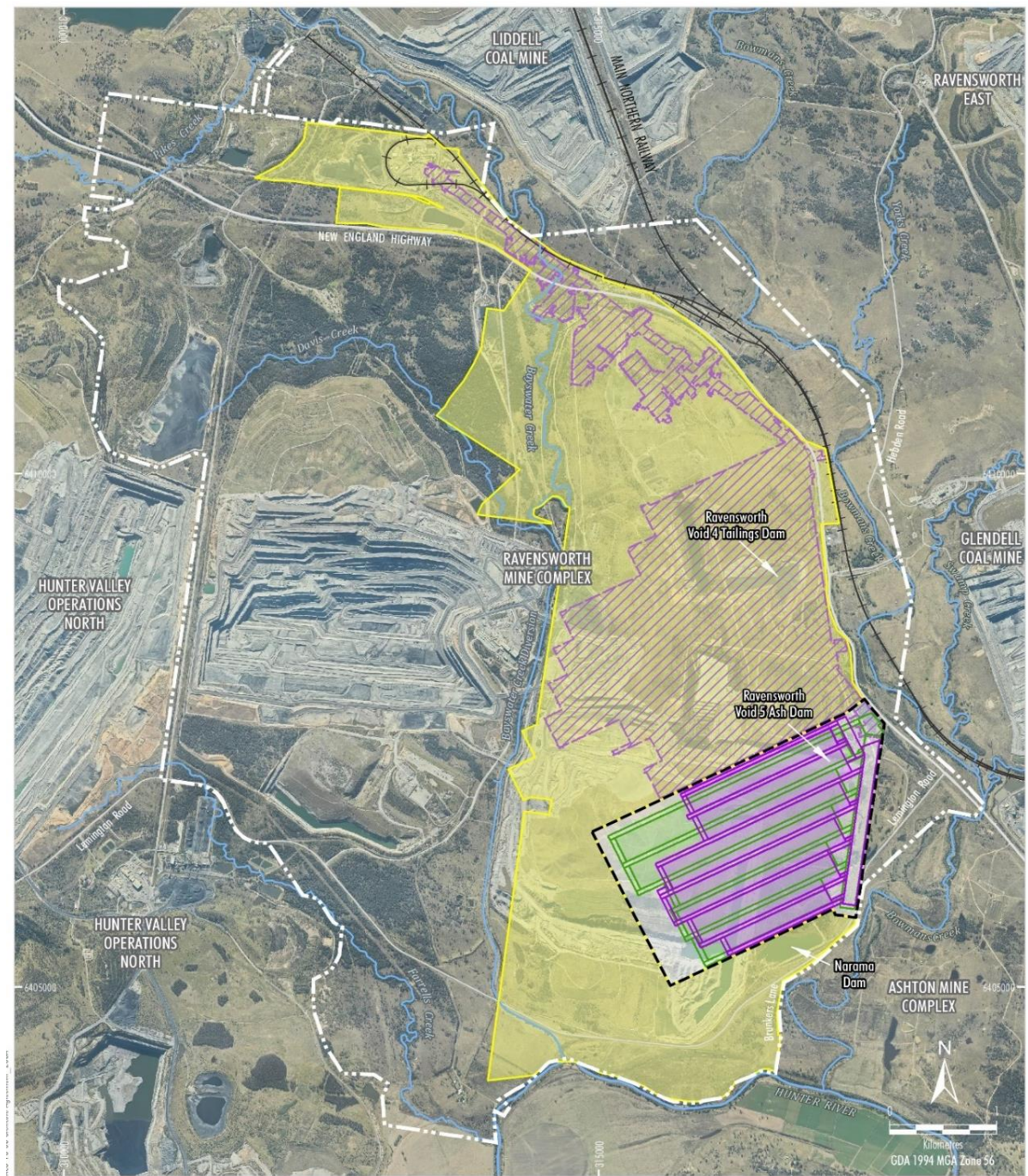
ACOL will implement the management, monitoring and reporting outlined in the Ashton Coal Project environmental management plans and strategies during mining of the ACOL-operated RUM.

The remaining areas of the approved RUM (i.e. outside of the ACOL-operated RUM) including the completed Pikes Gully seam Longwalls 1-9 as well as open cut mining activities associated with the Ravensworth Operations Project (Project Approval 09-0176) are managed in accordance with this Environmental Management Strategy (and the associated Ravensworth Complex environmental management plans) and the RUM Rehabilitation Management Plan.

Regular meetings will be held between Glencore and ACOL to discuss the following:

- planned Glencore and ACOL activities within the ACOL-operated RUM and surrounds;
- potential interactions between the Ravensworth Operations Project and the ACOL-operated RUM, including any relevant consequences of subsidence;
- environmental monitoring results relevant to the ACOL-operated RUM; and
- data and report sharing.

Figure 1.3 ACOL's Management Responsibility Under Development Consent DA 104/96



Source: NSW Spatial Services (2021) Orthophoto: Ravensworth Mine Complex (2021)

- LEGEND**
- Ravensworth Open Cut Operations Development Consent Boundary
 - Ravensworth Underground Mine
 - Completed Pikes Gully Seam Workings
 - Indicative Pikes Gully Seam Longwall Layout
 - Indicative Middle Liddell Seam Longwall Layout
 - Ravensworth Underground Mine - Management Responsibility under Development Consent DA 104/96
 - Operational Area to be managed by Resource Pacific Pty Ltd (Glenore) *
 - Operational Area to be managed by Ashton Coal Operations Ltd (Yancoal) ^

* The Ravensworth Underground Mine includes ancillary infrastructure and surface disturbance associated with underground mining including, but not limited to, ventilation, gas management and water management infrastructure and subsidence monitoring, management and remediation activities.

^ This area is called the 'ACOL-operated portion of the RUM' in the Management Plan.



ASHTON UNDERGROUND MINE

ACOL's Management Responsibility
Under Development Consent DA 104/96

1.5 Objectives

The objectives of this NMP are as follows:

- Establish a noise monitoring system to assess the Ravensworth Complex operational noise impact on surrounding sensitive receivers and its performance against the specific noise impact assessment criteria provided in the relevant approvals;
- Detail the controls that are to be implemented to minimise noise emissions from the site;
- Allow adaptive management of the operation based on real time noise monitoring results and prevailing meteorological conditions;
- Provide a mechanism to assess monitoring results against noise impact assessment criteria and land acquisition criteria to evaluate compliance;
- Manage noise related community complaints in a timely and effective manner;
- Detail the requirement for reporting noise criteria exceedances to the relevant stakeholders;
- Provide management commitments and strategies for dealing with noise related issues; and
- Detail the independent review process to be followed by the Ravensworth Complex if requested by a landowner(s) where the operation is considered to be exceeding the specific noise acquisition criteria.

1.6 Roles and Responsibilities

The roles and responsibilities of Ravensworth Complex employees and contractors in relation to noise management are outlined in **Table 1.2**.

Table 1.2 – Roles and Responsibilities

Role	Responsibilities
Operations Manager / Senior Project Manager	<ul style="list-style-type: none"> • Confirm sufficient resources are allocated for the implementation of this Plan; • Confirm that the plan is relevant to current operations; • Authorise the implementation of specific management measures to minimise air quality impacts in accordance with this Plan; • Confirm the outcomes of monitoring are systematically evaluated as part of ongoing planning; and • Authorise internal and external reporting requirements.
Environment and Community Manager (ECM)	<ul style="list-style-type: none"> • Confirm the requirements of this NMP are effectively implemented; • Identify potential noise impacts and implement actions to mitigate the identified risks; • Confirm the results of monitoring are systematically evaluated and reported to relevant personnel for consideration as a part of ongoing planning; • Confirm all internal and external reporting is undertaken; • Notify regulatory authorities and affected landholders of any noise related exceedance and undertake associated reporting; • Coordinate incident investigation processes in accordance with legal requirements and incident reporting procedures; • Coordinate the implementation of corrective actions and evaluate their effectiveness; • Coordinate monitoring surveys and develop proactive strategies to minimise noise impacts; and • Confirm all monitoring records are effectively maintained on site.

Environment and Community Coordinator (ECC)/ Environment and Community Officers (ECO)	<ul style="list-style-type: none"> • Maintain procedures to ensure potential noise impacts are identified; • Confirm all relevant personnel are aware of noise management practices and mitigation measures; • Monitor compliance based on legal and reporting requirements; • Confirm monitoring equipment is maintained and operational in accordance with legislative requirements; • Confirm any noise related incident is recorded and reported in accordance with legal requirements and incident reporting procedures; • Confirm the requirements of this Plan are effectively implemented; • Use appropriate risk management tools to identify potential noise impacts and monitor that teams are assessing and controlling risks accordingly; • Assist in the coordination of monitoring surveys and development of proactive strategies to minimise noise impacts; • Confirm appropriate noise monitoring reports are available on the Ravensworth Complex website; • Investigate noise complaints; • Provide advice regarding noise management in response to alarms from the unattended monitoring system; • Undertake regular inspections to ensure noise monitoring units are operating effectively and to assess noise emissions; • Provide input regarding the effectiveness of noise mitigation measures; • Assist with all internal and external reporting requirements; and • Confirm all monitoring records are effectively maintained onsite.
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Role	Responsibilities
Department Managers	<ul style="list-style-type: none"> • Comply with the requirements of this Plan including reporting requirements; • Use appropriate risk management tools to identify potential air quality impacts and monitor that teams are assessing and controlling risks accordingly; and • Confirm personnel and contractors carry out work in accordance with this Plan;
All Supervisors	<ul style="list-style-type: none"> • Ensure activities under their control are completed in accordance with the EMS; • Confirm environmental controls within their jurisdiction are operated and maintained in a proper and efficient manner; and • Report all environmental incidents and community complaints to the ECC.
All Employees	<ul style="list-style-type: none"> • Conduct all activities in accordance with the EMS and in an environmentally responsible manner; • Report all environmental incidents and community complaints to their immediate supervisor; and • Participate in the required environmental training.
All Contractors	<ul style="list-style-type: none"> • Conduct all activities in accordance with the EMS and in an environmentally responsible manner; • Report all environmental incidents and community complaints to their immediate supervisor; and • Participate in the required environmental training.

1.7 Definitions

The key terminology utilised within this NMP is defined in **Table 1.3**.

Table 1.3 Terminology utilised within the NMP

Term	Definition
Daytime	In relation to noise criteria, this is the period 7.00 am to 6.00 pm Monday to Saturday and 8.00 am to 6.00 pm Sundays and public holidays.
Decibel dB(A)	A decibel scale, weighted so that it takes into account the frequency response of the normal human ear.
Evening	In relation to noise criteria, this is the period 6.00 pm to 10.00 pm.
Non-compliance	Occurs when environmental monitoring results fall outside acceptable regulatory limits (i.e. Project Approval or EPL criteria).
LAeq (Period)	The average noise level, measured in dB(A), during a measurement period.
LA1	The noise level, measured in dB(A), which is exceeded for 1 % of the measurement period.
LA10	The noise level, measured in dB(A), which is exceeded for 10 % of the time.
Night	In relation to noise criteria, this is the period 10.00 pm to 7.00 am Monday to Saturday and 10.00 pm to 8.00 am Sundays and public holidays.

1.8 Baseline Data

As detailed within the Ravensworth Complex EA, a comprehensive noise impact assessment was undertaken for Ravensworth Complex. The EA completed an assessment of existing noise levels, determined the noise impact assessment criteria, predicted noise levels that will be generated, including cumulative impacts from neighbouring mines and assessed the potential for the project to cause noise impacts.

The existing noise environment in the vicinity of the Ravensworth Complex and potentially affected receivers was determined from noise monitoring undertaken at four locations representative of the key receiver areas surrounding the mine. The noise monitoring was used to determine the Rating Background Level (RBL) of noise in the key receiver areas in accordance with the INP (DECC 2000). The RBL provided a basis from which potential noise impacts can be assessed. The RBL and equivalent noise level for each receiver area is presented in **Table 1.4**.

Table 1.4 Existing Ambient Background Noise Levels

Location	Period ¹	RBL, L _{A90} dB(A) ²	Mean L _{Aeq} Noise ³ Level dB (A)
R1 Private Residence 34 (Stapleton)	Daytime	31.3	57.1
	Evening	31.3 (33.8) ¹	60.1
	Night	31.3 (33) ²	53
R2 Private Residence 3 (A Bowman)	Daytime	30	53.1
	Evening	30 (32.5) ¹	47.9
	Night	30	49.6
R3 Camberwell Village (Central)	Daytime	43.6	56.3
	Evening	43.6 (46.4) ¹	55.6
	Night	39.3	53.2
R4 Camberwell Village (North)	Daytime	37	52.2
	Evening	37 (38.3) ¹	46.6
	Night	36.8	49.3
R5 Private Residence 30 (Smiles)	Daytime	38.0	46.2
	Evening	37.2	49.2
	Night	33.0	47.8

Note 1: Set Evening RBL at the Day-time RBL Note 2: Set Night-time RBL at the Evening RBL

The results from the EA (**Table 1.4**) show that RBLs are generally around 30 dB(A) in the typically rural areas to the south-east, but are elevated to above 45 dB(A) close to the New England Highway within Camberwell Village. The New England Highway has a measurable effect on the noise environment of Camberwell Village.

2. Commitments

All management commitments outlined within this management plan including timing are outlined in **Table 2.1** below. Management commitments requiring actioning will be entered into the Ravensworth Complex Compliance Management system (CMO) and actioned, records of documentation associated with the management commitments will be maintained within the compliance management system.

Table 2.1 Commitments within this Management Plan

Commitment No.	Management Plan Commitment	Location in Document
1	Noise monitoring undertaken by the Ravensworth Complex is detailed in Section 6 with any exceedances of the criteria in Table 4.2 and managed in accordance with the procedures detailed in Section 7.3.2 .	4.1
2	Overburden emplacement areas have been designed to minimise noise impact on sensitive receivers to the east and southeast.	5.1
3	Limitations on the height of the overburden emplacement areas have been implemented to minimise noise impact on sensitive receivers to the east and southeast.	5.1
4	Overburden emplacement areas will be designed in a manner to enable mining equipment to operate in protected areas during adverse weather conditions.	5.1
5	The majority of the coal crushing plant and coal handling facilities are enclosed in buildings and protective structures that effectively contain noise generated in these processes to the close proximity of the plant.	5.1
6	Using real time noise monitors incorporating automatic alarms that will enable mine operators to take a proactive approach to minimising noise impacts.	6.1.1
7	Maintaining mining equipment to high standards to ensure high availability and to meet noise emission criteria.	5.2
8	Review weather forecast for potential impacts on sensitive receptors.	5.2
9	Modify operations in a timely manner, using site procedures following notification of an alarm.	5.2
10	Restricting operations on outer dump faces or elevated dumps in sensitive areas where possible during adverse weather conditions in accordance with noise monitoring system.	5.2
11	Procuring all new equipment against a specification for noise emission to meet noise criteria at the nearest private residences for total operations.	5.2
12	Controlling mine noise at the source through the use of equipment with appropriate sound attenuation fitted, where required.	5.2
13	Conducting noise management training with relevant personnel and completion of regular toolbox talks to enforce the importance of noise mitigation.	5.2
Commitment No.	Management Plan Commitment	Location in Document

14	<p>The Ravensworth Complex will manage rail noise on the Ravensworth Loop during loading. Controls implemented to control rail noise at the Ravensworth Complex include:</p> <ul style="list-style-type: none"> • Limiting coal transport to a maximum average of 18 train movements per day; • Limiting trains are limited to 0.8 km/h while loading. The rest of the track is under ARTC control, and is signposted with speed limits; and • Noise monitoring detailed under Section 6 will assess compliance with project approval conditions for the Ravensworth Complex, including rail noise. 	5.2
15	A continuous noise monitoring unit will be located between Ravensworth Complex and Camberwell Village.	5.3.1 and 6.1
16	In the event that Ravensworth Complex personnel receive notification of elevated noise levels, the Ravensworth Complex will undertake a review of the current mining operations (e.g. machinery locations and activities, meteorological conditions) and determine whether any modification to the operation is required to reduce the potential for noise related impacts.	5.3.1
17	The Ravensworth Complex will investigate any reported exceedances of noise criteria at private residences on a case-by-case basis. Should site specific monitoring or real time monitors indicate adverse noise impacts from the mine; the Ravensworth Complex will investigate reasonable and feasible measures to mitigate noise at the affected receiver.	5.3.1 and 6.4
18	Any new mitigation measures that are implemented as a result of these investigations will be reported in the Annual Review.	5.4.1 and 7.3.1
19	In the event that additional equipment in excess of the indicative site equipment list in Table 1.1 or in the EA is to be utilised by the Ravensworth Complex during construction or mining operations, it will evaluate whether the additional equipment has the potential to result in exceedances of the noise criteria in Section 4 prior to the equipment being utilised onsite.	5.5
20	Additional noise management awareness, including toolbox talks as necessary, will be provided to personnel and contractors who require specific skills or knowledge relating to noise impacts and mitigation	5.6
21	Attended noise monitoring will be undertaken on a monthly basis	6.1 and 6.1.2
22	The Ravensworth Complex ECM will report to the Operations Manager the results of investigations of any complaints and any exceedances of the noise impact assessment criteria.	7.2
23	Additionally, the Annual Review for the Ravensworth Complex will include all noise monitoring results for the corresponding year. The Annual Review will also include, any complaints relating to noise emissions from the Ravensworth Complex, and the response actions taken.	7.3.1

Commitment No.	Management Plan Commitment	Location in Document
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24	A summary of noise monitoring results will also be presented the Ravensworth Complex Community Consultative Committee (CCC) meetings.	7.4 and 7.3.1
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3. Regulatory Requirements & Stakeholder Consultation

3.1 Regulatory Requirements

The Ravensworth Complex NMP has been developed with reference to:

- The requirements of the relevant EPL 2652, PA09_0176 and DA 104/96;
- The *Protection of the Environment Operations Act 1997* (PoEO Act) administered by the NSW Environmental Protection Authority (EPA);
- *Environmental Planning and Assessment Act 1979* (EP&A Act) administered by the Department of Planning and Environment (DP&E);
- *Industrial Noise Policy* (Environmental Protection Authority (EPA), 2000); and
- *Environmental Criteria for Road Traffic Noise* (EPA, 1999).

Noise monitoring will be undertaken in accordance with the relevant latest versions of Australian Standards and EPA approved methods for sampling including:

- *Standards Australia 2018, AS 1055:2018 Acoustics: description and measurement of environmental noise*;
- *AS2702-1984 Acoustics – Methods for the Measurement of Road Traffic Noise*;
- *Standards Australia 2013, AS IEC 61672.1:2013 Electroacoustics – Sound level meters – Part 1: Specifications*;
- *Industrial Noise Policy* (Environmental Protection Authority (EPA), 2017).

Meteorological monitoring is to be undertaken in accordance with the following standards:

- *AS 2923-1987 Ambient Air - Guide for Measurement of Horizontal Wind for Air Quality Applications*; and
- *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales* (EPA, 2007).

All acoustic instrumentation used for monitoring under this NMP shall comply with the requirements of *AS 1259.2 – 1990 Sound Level Meters* and will have current National Association of Testing Authorities in Australia (NATA) or manufacturer calibration certificates. Calibration certificates will be maintained in accordance with the Ravensworth Complex Environmental Management Strategy (EMS) and records will be kept of any adjustments made to instruments.

The Ravensworth Complex will undertake environmental monitoring in accordance with the relevant legislation, EPL2652 and PA09_0176 conditions, Australian Standards and publications listed in this section. In the event that any of the above regulatory requirements change, these amendments will be addressed via the change management process detailed in **Section 5.5**.

This NMP is one component of the Ravensworth Complex Sustainable Health Safety, Environment and Community (HSEC). An EMS has been prepared for Ravensworth Complex (in accordance with Schedule 5, Condition 1 of PA 09_0176), which provides the strategic context for the environmental management of the operation.

In addition to the EMS, a number of plans and monitoring programs have been prepared in accordance with the Project Approval to facilitate the management of specific environment impacts of the operation. The implementation of the plans and programs will ensure effective environmental management of mining operations and compliance with statutory requirements. The objectives of the NMP are detailed in **Section 1.4**.

3.1.1 Project Approval 09_0176

PA09_0176 for the Ravensworth Complex was assessed under the EP&A Act. Project Approval for the Ravensworth Complex was gained from the Minister for Planning on 11 February 2011; with subsequent modifications approved in August 2013 (MOD 1), December 2014 (MOD 2) and February 2016 (MOD 3). The requirement for this NMP arises from Condition 9 of Schedule 3 of PA09_0176.

A detailed list of PA09_0176 noise conditions and the relevant Statement of Commitments and where they are addressed in this document, are included in **Appendix A.1**.

3.1.2 Development Approval DA104/96

RUM operates under development consent DA 104/96 dated 20 November 1996 (File No. N95/00395/001). A tenth modification (MOD 10) was submitted during 2022, primarily relating to Ashton Coal Operations Pty Ltd proposal to access and extract approved but unmined coal resources from RUM. Modification (MOD) 10 was approved by the DPE on 6 July 2022.

The original 1996 development application was supported by an EA for the construction and operation of an underground coal mine. Through subsequent EA modifications, RUM has an approved maximum production of 7 million tonnes per annum (Mtpa) of run of mine (ROM) coal.

RUM was placed in Care and Maintenance in October 2014.

3.1.3 Environment Protection Licence 2652

Noise monitoring at the Ravensworth Complex will be undertaken in accordance with the relevant EPL 2652 conditions for the Ravensworth Complex. EPL 2652 includes conditions relating to the noise limits (Condition L5.1) at private residences and the methodology for undertaking noise monitoring (Conditions L5.3 to L5.6). As stated by EPL 2652 Condition L5.2, for the purposes of Condition L5.1 sensitive receiver locations are derived from PA09_0176 (MOD 3).

3.1.4 Stakeholder Consultation Regarding this Document

As per Condition 9a of Schedule 3 of PA 09_0176, the NMP is to be prepared in consultation with EPA and the Department of Planning and Environment (DPE) (**Appendix A.2**). The consultation process is to involve the submission of the document to the EPA concurrently with its submission to the DPE. As such, any comments provided by the EPA following submission will be subsequently addressed in a revised document which will be resubmitted to the DPE and EPA.

4. Noise Impact Assessment Criteria

Noise impact assessment criteria are set for day, evening and night-time periods to protect the amenity of neighbouring residents. Noise impact assessment criteria are expressed as LAeq and LA1 limits (refer to **Section 1.6** for definitions) and are specified in PA09_0176 for the Ravensworth Complex. The relevant noise impact assessment criteria for the Ravensworth Complex are detailed in **Table 4.1**.

Table 4.1 Ravensworth Complex Noise Impact Assessment Criteria

Noise Impact Assessment Criteria	Section Where Included in this Document
Project Specific	Section 4.1
Noise Acquisition Criteria	Section 4.2
Cumulative Noise Criteria	Section 4.3
Additional Noise Mitigation Criteria	Section 4.4

The response to a non-compliance with noise criteria is detailed in **Section 7.3.1**.

4.1 Noise Criteria

Project specific noise assessment criteria for the Ravensworth Complex has been outlined by Condition 2 of Schedule 3 of PA09_0176 for day, evening and night-time periods at the locations listed in **Table 4.2**.

Table 4.2 Ravensworth Complex Noise Impact Assessment Criteria dB(A)

Location	Receiver	Day LAeq, 15 minute	Evening LAeq, 15 minute	Night ¹ LAeq, 15 minute	Night LAeq, 1 minute
R1	34 – Stapleton ²	48	48	48	49
R2	3 – A Bowman	35	35	35	45
	13 – A Bowman	38	38	38	45
R3	Camberwell Village (Central): 12 – Yates, 21 – Miller, 27 – Chisholm	37	37	37	45
	38 – Ninness	36	36	36	45
	All other privately owned land	35	35	35	45
R4	Camberwell Village (North) – All privately owned residences	35	35	35	45
-	All other privately owned land	35	35	35	45

Note 1: Set measured night time amenity criteria to acceptable criteria under the INP (OEH, 2000) **Note 2:** This property has been purchased by the Ravensworth Complex.

However, these noise impact assessment criteria in **Table 4.2** do not apply if Ravensworth Complex has an agreement with the relevant owner/s of these residences/land to generate higher noise levels, and the Ravensworth Complex has advised the department in writing of the terms of this agreement.

DA 104/96 Schedule 3 Condition 12 – Noise Criteria, states that the Applicant shall ensure that the noise generated by the development does not exceed the noise assessment criteria (as shown in **Table**

4.2 for *privately owned land*) at any residence on privately-owned land or on more than 25% of any privately owned land. Monitoring for this receiver is undertaken at Site 7 as shown on **Figure 6.3**.

Noise monitoring undertaken by the Ravensworth Complex is detailed in **Section 6** with any exceedances of the criteria in **Table 4.2** and managed in accordance with the procedures detailed in **Section 7.3.1**.

4.2 Noise Acquisition Criteria

In accordance with Condition 3 of Schedule 3 of PA09_0176, if noise generated by the Ravensworth Complex exceeds the limits in **Table 4.3**, at any residence on privately-owned land or on more than 25 per cent of any privately-owned land, then upon receiving written request from the landowner, the proponent shall acquire the land in accordance with the procedures nominated in **Section 6.3**.

Table 4.3 Noise Acquisition Criteria, dB(A)

Location	Receiver	Day	Evening	Night
R2	All privately owned land	40	40	40
R3	All privately owned land	54	54	49
R4	All privately owned land	47	47	47
-	All other privately owned land	40	40	40

4.2.1 Acquisition Upon Request

As required by Condition 1, Schedule 3 of PA09_0176 upon receiving a written request for acquisition from an owner of the land listed in Table 1 for noise (i.e. Receiver No.34), Ravensworth Complex shall acquire the land in accordance with the procedures in Conditions 6-7 of Schedule 4. Receiver No.34 has now been acquired by Ravensworth Complex.

4.3 Cumulative Noise Criteria

In accordance with Condition 4 of Schedule 3 of PA09_0176, the Ravensworth Complex shall implement all reasonable and feasible measures to ensure that the noise generated by its operations, combined with the noise generated by other mines, does not exceed the criteria in **Table 4.4** at any residence on privately owned land or on more than 25 % of any privately owned land.

Table 4.4 Cumulative Noise Criteria, dB(A)

Location	Day	Evening	Night
R3 and R4 Camberwell Village	55	45	40
All other privately owned land	50	45	40

In accordance with Condition 5 of Schedule 3 of the PA09_0176, If the cumulative noise generated by the Ravensworth Complex combined with the noise generated by other mines exceeds the criteria in **Table 4.5** at any residence on privately-owned land or on more than 25 per cent (%) of any privately-owned land, then upon receiving a written request from the landowner, the Proponent shall

acquire the land on as equitable basis as possible with the relevant mines, in accordance with **Section 6.2**.

Table 4.5 Cumulative Noise Acquisition Criteria, dB(A)

Location	Day	Evening	Night
R3 and R4 Camberwell Village	60	50	45
All other privately owned land	55	50	45

4.4 Additional Noise Mitigation Criteria

In accordance with Condition 6 of Schedule 3 of the PA09_0176, upon receiving a written request from the owner of any land identified in **Table 4.6** and Receivers 13 and 34, Ravensworth Complex shall implement additional reasonable and feasible noise mitigation measures (such as double glazing, insulation and/or air conditioning) at the residence in consultation with the owner. Receiver No.34 has now been acquired by Ravensworth Complex.

Table 4.6 Additional Noise Mitigation Criteria, dB(A)

Location	Receiver	Day	Evening	Night
R2	All privately owned land	37	37	37
R3	All privately owned land	51	51	45
R4	All privately owned land	44	44	44
-	All other privately owned land	37	37	37

If, within three months of receiving this request from the owner, the Ravensworth Complex and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

In accordance with Condition 7, of Schedule 3 of the PA09_0176, if the cumulative noise generated by the Ravensworth mine complex combined with the noise generated by other mines exceeds the criteria at any residence on the land referred to in **Table 4.7**, then upon receiving a written request from the owner, the Ravensworth Complex shall implement additional reasonable and feasible noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the residence in consultation with the owner.

Table 4.7 Cumulative Noise Mitigation Criteria, dB(A)

Location	Day	Evening	Night
R3 and R4 Camberwell Village	57	47	42
All other privately owned land	57	47	42

Ravensworth Complex shall share the costs associated with implementing these measures on an equitable basis as possible with the relevant mines. If within 3 months of receiving this request from the owner, Ravensworth Complex and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

5. Noise Management Controls

In order to mitigate any potential noise impacts from the operation, a number of noise management controls will be implemented throughout the life of the operation. These controls are detailed in **Section 5.1** and **5.2** below.

The Ravensworth Complex proposes to control noise at the source, primarily through the appropriate design of the mining sequence and the use of equipment with appropriate sound attenuation fitted, as required. Typical noise emissions generated by mining operations are low frequency, generally up to 160 Hertz (Hz). Therefore, the Ravensworth Complex proposes to control low frequency noise through the same methods employed to control overall operational noise emissions.

5.1 Design Controls

In addition to the noise controls which will be implemented by the Ravensworth Complex during construction and mining operations (see **Section 5.2**), a number of noise controls were also incorporated into the design of the Project as follows:

- Overburden emplacement areas have been designed to minimise noise impact on sensitive receivers to the east and southeast;
- Limitations on the height of the overburden emplacement areas have been implemented to minimise noise impact on sensitive receivers to the east and southeast
- Overburden emplacement areas will be designed in a manner to enable mining equipment to operate in protected areas during adverse weather conditions; and
- The majority of the coal crushing plant and coal handling facilities are enclosed in buildings and protective structures that effectively contain noise generated in these processes to the close proximity of the plant.

5.2 Operational Controls

The Ravensworth Complex is committed to maintain the following controls to manage noise generation:

- Using real time noise monitors incorporating automatic alarms that will enable mine operators to take a proactive approach to minimising noise impacts;
- Maintaining mining equipment to high standards to ensure high availability and to meet noise emission criteria;
- Review weather forecast (i.e adverse weather conditions) for potential impacts on sensitive receptors;
- Modify operations in a timely manner, using site procedures following notification of an alarm requiring ROC to reduce levels within compliance levels within a timely manner;

- Restricting operations on outer dump faces or elevated dumps in sensitive areas where possible during adverse weather conditions in accordance with noise monitoring system;
- Procuring all new equipment against a specification for noise emission to meet noise criteria at the nearest private residences for total operations;
- Controlling mine noise at the source through the use of equipment with appropriate sound attenuation fitted, where required; and
- Conducting noise management training with relevant personnel and completion of regular toolbox talks.

The Ravensworth Complex will occasionally be required to utilise items of construction / mining equipment for works at its operations. Prior to use of the equipment onsite, noise assessment due diligence may be conducted to assess the contribution of the additional equipment to the overall noise emissions from the Ravensworth Complex.

This information will be utilised to assess overall compliance with noise criteria for the site (refer to **Section 4**). Equipment selection will be governed by the overall noise performance of the mine, not necessarily on individual items of equipment. The Ravensworth Complex will maintain written records on the decision-making process that was undertaken for new equipment purchasing and hire with regard to the contribution the equipment makes to the noise emissions generated from the site.

Rail noise within the Ravensworth Complex is managed by three separate organisations. Rail noise on the Main Northern Railway line is managed Australian Rail Track Corporation (ARTC) under EPL 3142. The Newdell Spur is privately owned and managed by Yancoal Australia Ltd. The Ravensworth Complex will manage rail noise on the Ravensworth Loop during loading. Controls implemented to control rail noise at the Ravensworth Complex include:

- Limiting coal transport to a maximum average of 18 train movements per day;
- Limiting trains to 0.8 kilometres per hour (km/h) while loading. The rest of the track is under ARTC control, and is signposted with speed limits; and
- Noise monitoring detailed under **Section 6** will assess compliance with Project Approval conditions for the Ravensworth Complex, including rail noise.

5.2.1 Minimising Cumulative Noise Impacts

With regard to cumulative noise impacts on nearby, shared sensitive receptors, Ravensworth Complex and surrounding sites for example Hunter Valley Operations (HVO) as well as other GCAA sites will co-operate with each other to minimise cumulative noise quality on nearby sensitive receptors impacts.

Ravensworth Complex and surrounding mines will act in good faith when informed by neighbouring mines of any noise alarms at the relevant locations. In the same manner as for the investigation of a complaint or to validate a noise alarm, Ravensworth Complex and surrounding mines will investigate the circumstances as described by the neighbouring mine.

5.3 Proactive Noise Management

A range of proactive measures are to be implemented by the Ravensworth Complex to manage noise emissions. These proactive management measures are detailed in **Section 5.3.1** below. Ravensworth Complex will seek to undertake continuous improvement for active noise management with additional continuous improvement processes detailed in **Section 5.4**.

5.3.1 Active Management - Current Practice

As detailed in **Section 6.1**, the unattended continuous noise monitoring network at the Ravensworth Complex has the ability to notify relevant personnel when results indicate noise levels at surrounding sensitive receivers are approaching, or have exceeded, relevant noise criteria. A continuous noise monitoring unit will be located between Ravensworth Complex and Camberwell Village this unit will be capable of discerning the direction from which a noise emanates and the contribution the noise source makes to project specific and cumulative noise levels.

In the event that Ravensworth Complex personnel receive notification of elevated noise levels, the Ravensworth Complex will undertake a review of the current mining operations (e.g. machinery locations and activities, meteorological conditions) and determine whether any modification to the operation is required to reduce the potential for noise related impacts.

The Ravensworth Complex will investigate any reported exceedances of noise criteria at private residences on a case-by-case basis. Should site specific monitoring or real time monitors indicate adverse noise impacts from the mine; the Ravensworth Complex will investigate reasonable and feasible measures to mitigate noise at the affected receiver (refer to **Section 6.4**).

5.4 Continuous Improvement

5.4.1 Best Practice Noise Mitigation Measures

Where possible, the Ravensworth Complex will attempt to implement all reasonable and feasible best practice noise mitigation measures. The basis for continuous improvement of noise mitigation measures will be through the ongoing monitoring of noise impacts and the corrective / preventative action process (refer to **Section 7.5**). Any new mitigation measures that are implemented as a result of these investigations will be reported in the Annual Review (**Section 7.3.1**).

The Ravensworth Complex will also maintain awareness of new technologies for noise mitigation through participation in relevant industry groups.

5.4.2 Active Noise Management

The Ravensworth Complex will investigate new technologies from time to time to assist with maintaining measures for the management and mitigation of noise impacts at Ravensworth.

5.4.3 Operational Risk Assessment

In accordance with GCAA's protocol *11.11 Noise Management* and *11.01 Environment and Community Risk Assessments* procedure, an annual environment and community risk assessment review will be

undertaken. The annual environment and community risk assessment will include an assessment of activities at the Ravensworth Complex that influence noise impacts on the surrounding community and sensitive receivers, noise monitoring trends and implementation of controls. If required, this NMP will be updated accordingly in accordance with **Section 7.7** of this NMP, if the annual environment and community risk assessment identifies further improvements to noise management and additional mitigation measures where appropriate.

5.5 Change Management

Change management will be undertaken at the Ravensworth Complex in accordance with GCAA Guidelines. All changes to operations, facilities, plant equipment and production processes are required to be assessed in accordance with the change management process. This will also include a validation process, when required to determine compliance this may include sound power level testing to determine that the noise specifications of machinery are consistent with the specifications used as part of the pre procurement, Application for Expenditure and the EA.

In the event that additional equipment in excess of the indicative site equipment list in **Table 1.1** or in the EA is to be utilised by the Ravensworth Complex during construction or mining operations, it will evaluate whether the additional equipment has the potential to result in exceedances of the noise criteria in **Section 4** prior to the equipment being utilised onsite.

5.6 Training

To ensure the effective implementation of this Plan, all appropriate Ravensworth Complex personnel and contractors will be advised of noise management requirements via the Ravensworth Complex training management system. Additional noise management awareness, including toolbox talks as necessary, will be provided to personnel and contractors who require specific skills or knowledge relating to noise impacts and mitigation. Topics covered for relevant personnel and contractors may include noise mitigation measures, noise monitoring and alert systems and steps to be undertaken in the event of noise monitoring alerts from real time noise monitors.

6. Noise Monitoring

6.1 Noise Monitoring Program

To ensure noise monitoring requirements of PA09_0176, DA 104/96 and EPL 2652 for the Ravensworth Complex are achieved, integration of existing noise monitoring programs and monitoring locations operating in the area, with strategically placed equipment designed to complement the coverage provided by existing systems.

Attended noise monitoring will be undertaken on a monthly basis. Noise monitoring at the Ravensworth Complex is to be undertaken in accordance with **Section 6.1** and site-based procedures.

Noise monitoring will be undertaken at the locations identified in **Figures 6.1, 6.2 and 6.3**.

Figure 6.1 Ravensworth Complex Noise Monitoring Locations (Property Ownership)

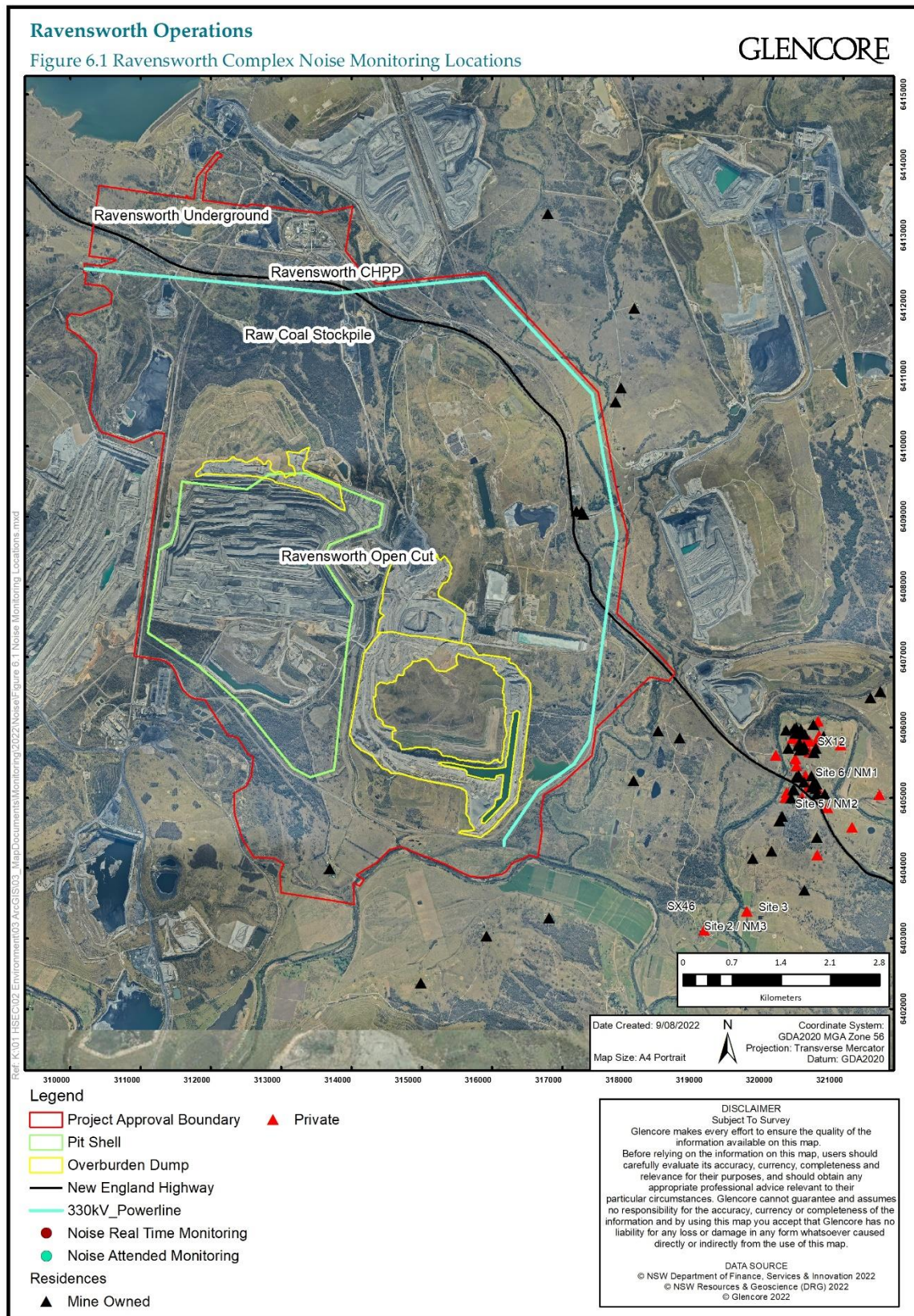


Figure 6.2 Ravensworth Complex Noise Monitoring Locations (Receiver Locations)

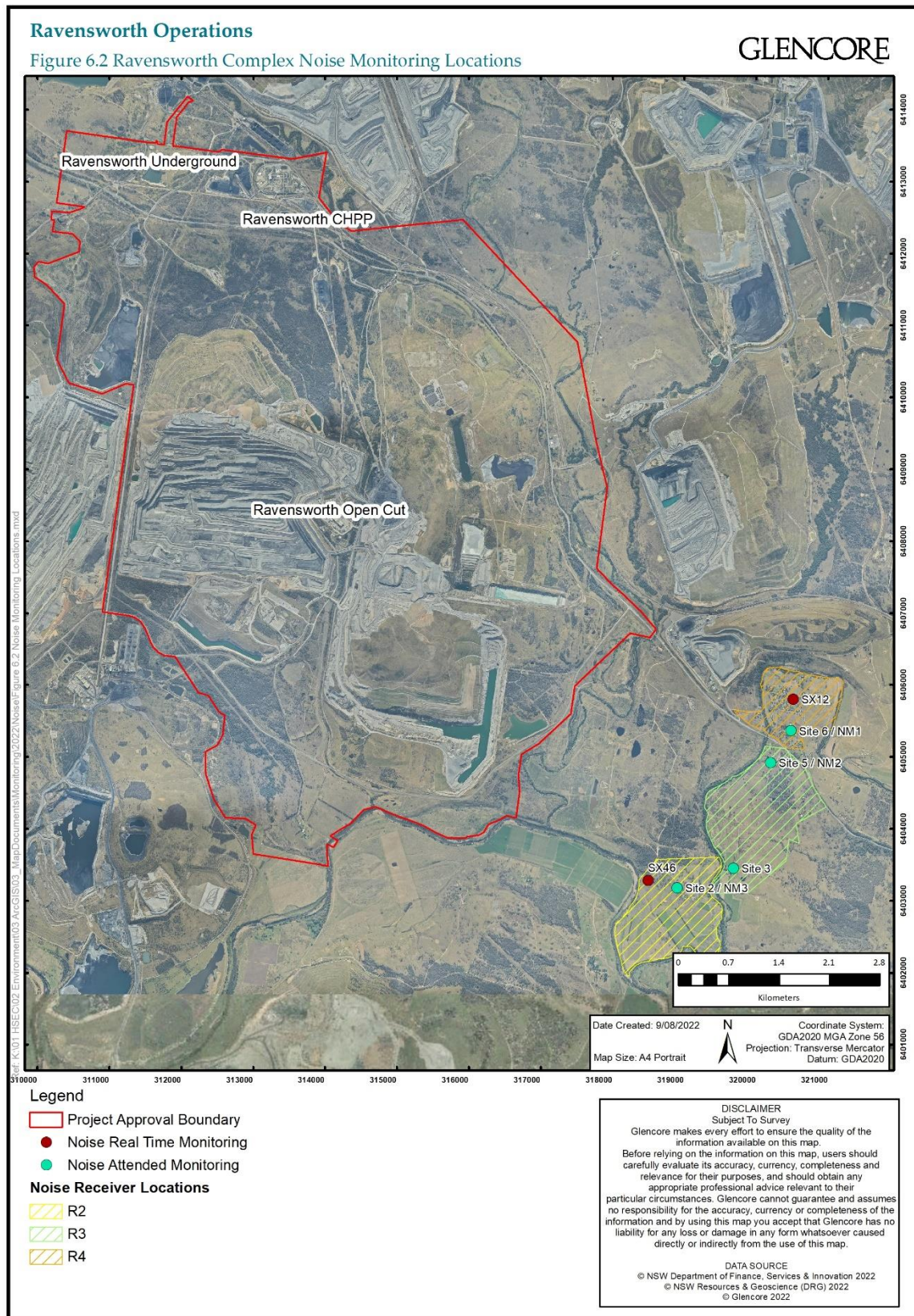
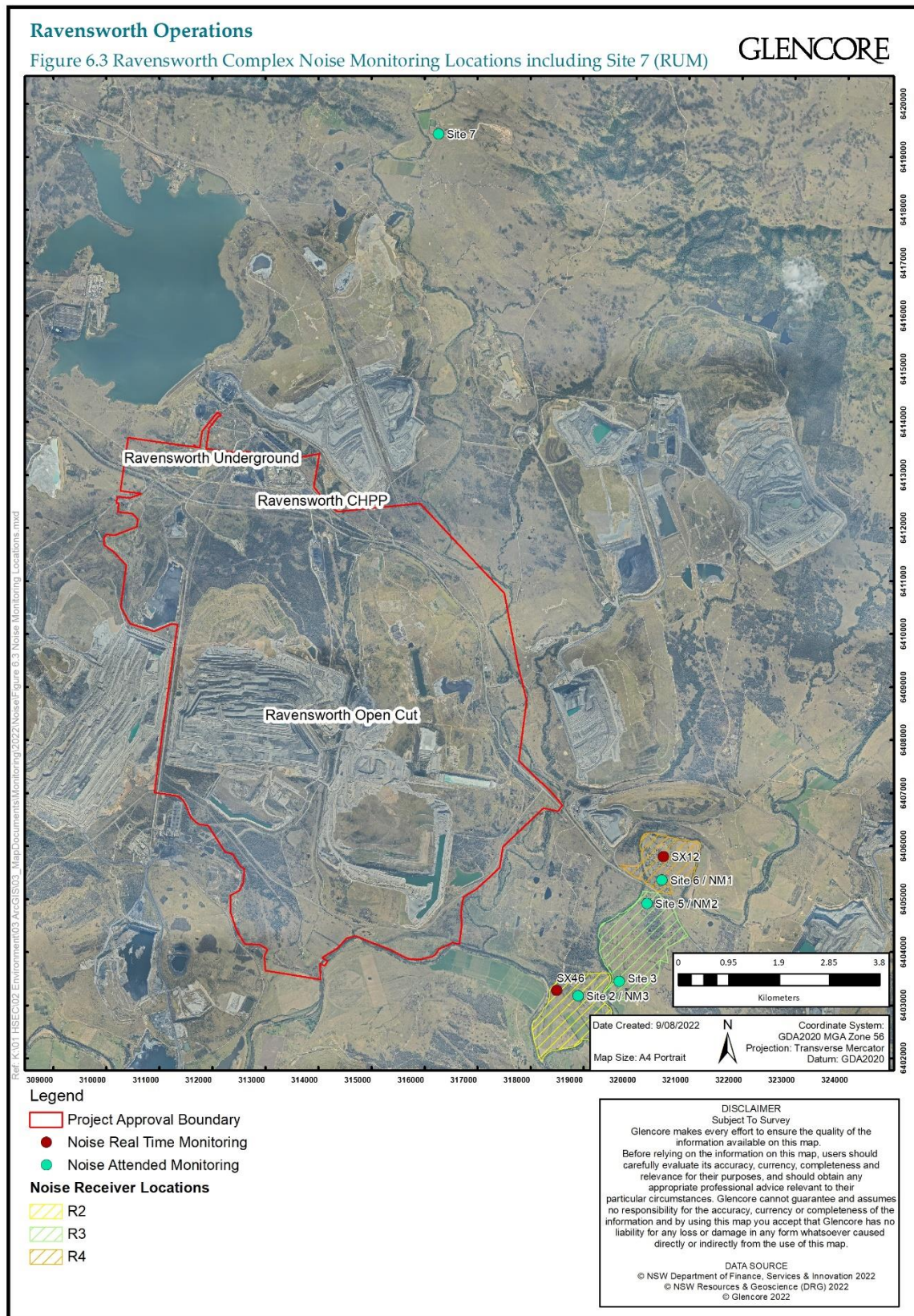


Figure 6.3 Ravensworth Complex Noise Monitoring Locations Including Site 7 (RUM)



A summary of the attended and unattended noise monitoring programs is outlined in **Table 6.1**. All noise monitoring locations are shown on **Figures 6.1** and **6.2**. Each location was chosen based on the Noise Assessment completed for the EA. These locations provide an accurate reference to determine compliance and satisfy regulatory requirements.

Table 6.1 Ravensworth Complex Noise Monitoring Locations

Monitoring Type	Monitoring Location	Receiver Location	Description	MGA Coordinates
Attended	Site 2 / NM3	R2	Private residence (A. Bowman)	E: 318900 N: 6403180
Attended	Site 3	R3	Private residence (W. Bowman)	E: 319680 N: 6403450
Attended	Site 5 / NM2	R3	Glennies St/ Perry St, Camberwell Village (South)	E: 320196 N: 6404917
Attended	Site 6 / NM1	R4	Cnr Dawson St / Lethbridge St, Camberwell Village (North)	E: 320555 N: 6405874
Attended	Site 7*	R7*	1246 Hebden Road RUM Noise Monitoring Point	E: 316277 N: 6419434
Continuous (unattended)	SX46	R2	Private residence (A. Bowman)	E: 318491 N: 6403283
Continuous (unattended)	SX12	R4	Dawson Street, Camberwell Village (North) (Owned and managed by neighbouring GCAA operations)	E: 320647 N: 6405896

Note: *RUM Receiver 7 is monitored on a quarterly basis.

The Ravensworth Complex has a directional noise monitoring unit (SX46) installed at Site 2 and has access to data from a unit operated by a neighbouring GCAA site (SX12), which is located in Camberwell Village. The data from SX12 is used on an as needs basis, whereas the data from SX46 is used to supplement the attended noise monitoring data (refer to **Figures 6.1** and **6.2**).

6.1.1 Unattended Real Time Noise Monitoring

Real time noise monitoring is considered to be a proactive way to manage noise impacts at the Ravensworth Complex. Real time noise monitoring allows noise levels and local meteorological data to be analysed and compared against compliance modelling.

The unattended continuous noise monitors provide information on the ambient noise environment local to the monitoring site. The unattended continuous noise monitoring data includes quantitative data that can be used to determine the likely source of the noise. This data can also be used to determine the background noise levels and the existing LAeq ambient noise levels.

The Ravensworth Complex has real time, directional noise monitoring unit (refer to **Figures 6.1** and **6.2**) that is programmed to send an SMS to key operational personnel when a trigger noise level is reached. An SMS alarm is triggered based on a measured noise level, which is set at a level based on the relevant criteria or predicted noise levels at the nearby sensitive receivers. This real time monitor alarm level is only applicable to receiver location R2 (Receiver 13 – A Bowman). SMS alarm levels for unattended noise monitor at the closest sensitive receptors (R2) is set at the levels detailed in **Table 6.2**.

Table 6.2. Real Time Monitor Alarm levels.

Alarm	Level	Time period
Red (SX46)	34 dBA	2 x 15 minute periods

Following SMS alarms, dependent on the level a review of operations and current meteorological conditions is undertaken, in order to minimise the risk of noise level exceedances. If noise levels above the noise impact assessment criteria (refer to **Section 4**) are deemed to be as a result of the Ravensworth Complex's activities or contributions from neighbouring mines, mitigation measures will be undertaken to reduce levels within compliance levels within a timely manner. This may include modification and or cessation of operations and notifying surrounding mines.

The unattended real time continuous noise monitor will also provide the following functionality:

- A complete representation of all noises at the monitoring location throughout the period, with results showing diurnal variations and, if the period is long enough, seasonal variations;
- A mechanism to alert the Ravensworth Complex personnel when noise levels are approaching the relevant criteria so the operation can be adjusted accordingly, if required (refer to **Section 5.3**);
- Supplemental data for noise investigations initiated in response to community complaints or noise exceedances;
- Data that can be used to determine correlations between mining operations, meteorological conditions and environmental noise levels; and
- Data for use in assessment of cumulative noise levels.

The continuous noise monitors record the following information:

- The date and time;
- The LAeq for each 15 minute interval;
- The LAmin, LA90, LA10 and LAmax for each 15 minute interval;
- The 15 minute one-third octave LAeq noise levels corresponding to the LAeq 15 minute interval;
- Between 10 second and one minute (depending on the settings) one-third octave noise levels over the entire monitoring period;
- The LAeq, period (where period = day, evening and night) for each 24 hour interval;
- The maximum LA1, 1 minute noise level recorded over a predefined 15 minute night time measurement period;
- Continuous weather data monitoring for wind direction, speed, temperature and rainfall as 15 minute averages; and
- Continuous "mp3" file recording for subsequent playback.

6.1.2 Attended Noise Monitoring

Attended noise monitoring will be undertaken monthly at the locations nominated in **Table 6.1** and **Figures 6.1** and **6.2** in accordance with the EPA's recent versions of the Industrial Noise Policy (INP)

guidelines and *Australian Standard AS 1055 Acoustics, Description and Measurement of Environmental Noise*.

The attended noise monitoring survey is used to quantify and describe the acoustic environment at each monitoring location. Typically, the results are compared with the noise criteria defined in the Project Approval to assess compliance. Attended noise monitoring is often considered the preferred method for determining compliance with prescribed limits because it allows for an accurate determination of the contribution made by industrial noise sources, if any, to measured ambient noise levels. The attended noise monitoring program is used to:

- Identify individual sources contributing to the ambient noise environment;
- Quantify mine noise levels;
- Compare with unattended monitoring results, where the data is available and recorded;
- Predict noise in the surrounding region using meteorological data;
- Determine whether a modifying factor should be applied to the contributing mine noise levels (in accordance with the INP); and
- Gain an understanding of the effects of meteorological conditions on the propagation of the noise from the Ravensworth Complex to the monitoring location.

With regard to received levels of the Ravensworth Complex's mining noise during various periods, and given all receptors are located a considerable distance the mine with regard to noise propagation (greater than 3,000 metres (m)), the following can be said:

- Mining noise is typically inaudible during the day period, particularly once the ground heats up (day time is not usually a problem period). It is acknowledged that meteorological conditions that occur during the night period can extend into the early part of the day period;
- Evening is a transitional period from day to night, from the hours 6pm to 10pm. Meteorological conditions at 6pm are usually as per day (broad daylight in summer), but as per night at 10pm; and
- Highest mining noise levels are received offsite, for the vast majority of times, during the night period.

Therefore, it is sufficient to prove compliance by monitoring during the night period with the assumption that compliance would then result during the periods either side. For the purposes of attended monitoring the night time period will be brought forward to 9pm to address any community concern prior to the defined 10pm start time for night period. Additional reasons for monitoring at night only are:

- Other activities (e.g. farming, road traffic) are more common during the day and evening, making it difficult to measure the source of interest; and
- Air movement during the day is often above speeds during which monitoring can take place, and, greater than speeds in which criteria apply.

Given the above, this NMP does not include day or evening monitoring. Other benefits of this approach are:

- Less visits are required to each location, reducing potential annoyance to residents; and

Each attended noise survey comprises at least one 15 minute measurements at each location (in accordance with PA09_0176).

The DPE require monitoring to determine if any impacts are systemic or sustained. Accordingly, if a noise criterion exceedance is measured, follow up monitoring will be undertaken at that specific location (not all locations) within two hours on the same night. The regular monitoring frequency will be resumed if no further exceedances are measured. If, however, a further exceedance is measured during the follow up period, notification to the DPE and EPA in accordance with **Section 7.3.2** must be undertaken. In addition, a comprehensive survey (Ngara logger or similar) will be undertaken in consultation with and to the satisfaction of the DPE and EPA, to determine if these impacts are regular (systemic / sustained).

Ravensworth Complex must be notified by the noise monitoring specialists, following the first exceedance so management actions can be taken. For each 15-minute monitoring period, the following information will be recorded:

- Operator's name;
- Monitoring location;
- Date and time that monitoring began at each location;
- Quantitative meteorological data such as temperature, wind speed, wind direction and humidity;
- Qualitative meteorological information such as cloud cover, fog, and rainfall;
- Value or estimate of the Ravensworth Complex $L_{Aeq,15\text{minute}}$
- The highest mining $LA_{1,1\text{minute}}$ noise level (to allow comparison with the relevant sleep arousal criterion);
- The overall $L_{Aeq,15\text{minute}}$;
- Statistical noise level descriptors: L_{Amin} , LA_{90} , LA_{10} , LA_1 and L_{Amax} ;
- Notes that identify the noise source that generated the highest $LA_{1\text{minute}}$ (L_{Amax});
- Measurement of the C weighted scale noise levels;
- Measurements in one-third octave bands from 25 Hz to 10 kHz inclusive (or a broader range of bands) to assess if the mining noise has characteristics that may require modifying factors to be applied; and
- Data suitable for assessing the relative contribution of mine generated noise to the overall noise being measured by using a suitable low pass filter.

In accordance with the methodology outlined in the INP, if any of the data in a 15-minute period is affected by rain or wind speeds in excess of 5 m/s then another entire 15-minute period of data unaffected by rain or excessive wind shall be undertaken.

6.1.3 Meteorological Monitoring

The local meteorological data collected during the attended monitoring program and by the noise monitoring units will be supplemented by more detailed records from the Ravensworth Complex

weather stations (refer to **Figures 6.1 and 6.2**). The meteorological data recorded by the weather stations will include:

- Wind speed, wind direction and sigma-theta;
- Temperature;
- Humidity; and
- Rainfall.

In accordance with INP, noise limits will apply under all meteorological conditions except:

- during rain and wind speeds greater than 3.0 m/s[#]; and
- from 6pm to 7am during atmospheric stability class G (the methodology for determining stability class is described in Fact Sheet D of the INP).

[#]**Note:** Wind data is to be measured at 10 m above ground level, as per the INP.

Noise exceedances identified to have occurred during the above meteorological conditions are considered to be 'extraneous noise' as detailed in the INP.

6.2 Compliance Assessment Protocol

6.2.1 Noise Impact Assessment and Land Acquisition Criteria

The methodology for assessing compliance with both the noise impact assessment criteria and land acquisition criteria is the same. The LA_{eq}, 15 minute noise assessment criteria (including traffic noise impact assessment criteria) provided in **Section 4** represent the allowable noise levels from mining activities at the Ravensworth Complex at each of the respective monitoring locations. As determined by **Section 6.1.2**, should noise levels exceed an allowable noise level criterion provided in **Section 4**, the Ravensworth Complex will be required to implement appropriate noise mitigation measures or, in some circumstances, acquire the relevant property upon written request of the landowner.

The results from the attended noise monitoring program (**Section 6.2.1**) provide a quantitative assessment of noise levels from mining activities at the Ravensworth Complex at each of the respective monitoring locations during the time of monitoring. Attended noise monitoring is the only method for determining compliance with prescribed limits because it allows for an accurate determination of the contribution made by mine noise sources, if any, to measured ambient noise levels

The monitoring program will also be used to assess the performance of all mining machinery as a whole. Equipment selection will be governed by the noise performance of the mine, not necessarily individual items of equipment.

The Ravensworth Complex is considered to be compliant with the relevant statutory requirements if, at the time of monitoring, the measured noise levels from the mine do not exceed the noise assessment criteria summarised in **Section 4**.

6.2.2 LA₁, 1 minute Noise Criteria

The attended noise surveys include the assessment of night time LA₁, 1 minute noise levels generated by the mine at the time of monitoring. The measured LA₁, 1 minute noise levels are compared with the

relevant LA1, 1 minute criteria in **Section 4** to assess compliance of the mine with PA09_0176. The Ravensworth Complex is considered to be compliant if, at the time of monitoring, the measured noise levels do not exceed the LA1, 1 minute criteria provided in **Section 4**. The noise recordings from the unattended noise monitoring network will also be used to help identify noise sources generated by the mine that could contribute to the night time LA1, 1 minute noise levels.

6.3 Independent Review

In the event that a landowner considers Ravensworth Complex to be exceeding noise criteria at his or her property, the landowner may request an independent review of the noise impacts at the property. The independent review will be conducted in accordance with the procedure described in Schedule 4, Conditions 3 to 5 of the PA09_0176. The procedure is summarised as follows:

If the independent review determines that the project is complying with the relevant criteria in Schedule 3, then the Ravensworth Complex may discontinue the independent review with the approval of the Secretary. If the independent review determines that the project is not complying with the relevant criteria in Schedule 3, and that the project is primarily responsible for this non-compliance, then Ravensworth Complex shall:

- implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent person, and conduct further monitoring until the project complies with the relevant criteria; or
- secure a written agreement with the landowner to allow exceedances of the relevant criteria, to the satisfaction of the Secretary.

If the independent review determines that the relevant criteria in schedule 3 are being exceeded, but that more than one mine is responsible for this non-compliance, then together with the relevant mine/s, the Ravensworth Complex shall:

- implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent person, and conduct further monitoring until there is compliance with the relevant criteria; or
- secure a written agreement with the landowner and other relevant mines to allow exceedances of the relevant criteria, to the satisfaction of the Secretary.

If the independent review determines that the project is not complying with the relevant acquisition criteria in Schedule 3, but that more than one mine is responsible for this non-compliance, then upon receiving a written request from the landowner, Ravensworth Complex shall acquire all or part of the landowner's land on as equitable a basis as possible with the relevant mine/s, in accordance with the procedures in Conditions 6 and 7 of PA09_0176. A summary of the land acquisition process is provided in **Section 6.4**.

6.4 Land Acquisition Process

Within 3 months of receiving a written request from a landowner with acquisition rights, Ravensworth Complex shall make a binding written offer to the landowner based on:

- the current market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the project, having regard to the:
 - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and

- presence of improvements on the property and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of any additional mitigation measures required under Condition 6, 7 or 22 of Schedule 3 of PA09_0176;
- the reasonable costs associated with:
 - relocating within the Singleton or Muswellbrook local government areas, or to any other local government area determined by the Secretary; and
 - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and
- reasonable compensation for any disturbance caused by the land acquisition process.

Ravensworth Operation shall pay all reasonable costs associated with the land acquisition process described in Condition 6, Schedule 4 of PA09_0176, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.

6.5 Additional Noise Mitigation Measures

In accordance with Schedule 3, Condition 6 of PA09_0176 (**Appendix A.1**), the Ravensworth Complex will implement additional noise mitigation measures at a residence when a valid request is received. Any such mitigation measure must be reasonable and feasible. If within three months of such a request being made an appropriate mitigation measure cannot be agreed upon, or there is a dispute about the implementation of the measures, then either party may refer the matter to the Secretary for resolution.

7. Reporting and Review

7.1 Reporting

All internal and external reporting will be undertaken in accordance with the requirements of GCAA protocol *11.01 Environmental Reporting* (GCAA-625378177-10274) and this management plan.

7.2 Internal Reporting

The ECM will report to the Operations Manager the results of investigations of any complaints and any exceedances of the noise impact assessment criteria (refer to **Section 4**).

If a non-compliance with the noise impact assessment criteria (refer to **Section 4**) is identified during attended noise monitoring (**Section 6.1.2**), an internal report detailing the circumstances of the non-compliance and resulting actions will be developed and submitted to GCAA. External reporting of the non-compliance will be undertaken in accordance with **Section 7.3**.

7.3 External Reporting

All noise monitoring results will be made publicly available on the Ravensworth Complex website in accordance with Schedule 5, Conditions 7 and 10 of PA09_0176.

In accordance with *Protection of the Environment Legislation Amendment Act 2011* (Amendment Act), the Ravensworth Complex will also provide monitoring data on its website within 14 days of obtaining the data.

A summary of noise monitoring results will also be presented the Ravensworth Complex Community Consultative Committee (CCC) meetings.

7.3.1 Annual Review

In accordance with Condition 34, Schedule 5 of PA09_0176 Ravensworth Complex will conduct an Annual Review of its operations prior to 31 March for the preceding calendar year. This annual review will include, but not limited to:

A comprehensive review of the monitoring results and complaints records of Ravensworth Complex over the previous calendar year, which includes a comparison of these results against the:

- Relevant statutory requirements, limits or performance measures/criteria;
- Monitoring results of previous years; and
- Relevant predictions in the EA.
- Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance.
- Identify any trends in the monitoring data over the life of the project.
- Identify any discrepancies between the predicted and actual impacts and analyse the potential cause of any significant discrepancies; and

- Describe what measures will be implemented over the next year to improve the environmental performance of the project.

The Annual Review will be made publicly available on the Ravensworth Complex website in accordance with Condition 10, Schedule 5 of PA09_0176.

7.3.2 Noise Exceedance Reporting Protocol

In accordance with Condition 6 of Schedule 5 of PA09_0176, as soon as practicable following identification of an exceedance of the noise impact assessment criteria provided in **Section 4**, Ravensworth Complex will report the exceedance to the relevant authorities including the DPE and EPA.

In addition, in accordance with Condition 6 of Schedule 5 of the PA09_0176, within seven days of becoming aware of the incident, Ravensworth Complex will provide the Secretary and any relevant agencies with a detailed report on the incident. The report will include the following details:

- Date, time and nature of the exceedance/incident;
- Identify the likely cause of the exceedance/incident;
- Describe the response action that has been undertaken to date; and
- Describe the proposed measures to address the exceedance/incident.

Additionally, in accordance with Schedule 4, Condition 2 of the PA09_0176 (refer to **Appendix A.1**), in the event an exceedance of the noise impact assessment criteria is identified, the Ravensworth Complex will notify DPE and any affected landowner(s) and provide monthly monitoring results to each of these parties until the results show that the operation is complying with the relevant criteria (refer to **Section 4**).

In accordance with Condition 2 of Schedule 4 of the Project Approval, within two weeks of obtaining monitoring results showing an exceedance of the relevant criteria in conditions 6c or 7 of Schedule 3 of the Project Approval, the Ravensworth Complex shall notify the applicable owner in writing that they are entitled to ask for additional noise mitigation to be installed at their residence.

In accordance with DA104/96 Schedule 4 Condition 5 – Incident Reporting, Ravensworth shall notify, at the earliest opportunity, the Director-General and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. Within 7 days of the date of the incident, Ravensworth shall provide the Director-General and any relevant agencies with a detailed report on the incident, and as such further reports as may be requested.

7.4 Complaint Response

In accordance with the EMS, Ravensworth will maintain a centralised location to record communication details of relevant external stakeholder and procedures for stakeholder contact including complaints procedures for the Ravensworth Complex.

The Complaints Procedure will utilise the Community Contact Line, 1800 620 553 telephone number that will be regularly advertised in a local newspaper. The Contact Line will be in operation 24 hours per day, seven days a week.

Community complaints will be recorded and investigated by the ECC. All other complaints, via letter, in person or by fax, will also be recorded and investigated by the ECC. Initial response to the complainant will be made as soon as practicable by the ECC.

Ravensworth will arrange monitoring at or near the complainants residence where appropriate and where agreed to by the complainant. The complainant is to be advised of these arrangements once made.

In the event a complaint is received in relation to noise from the operation, an investigation will be undertaken in accordance with *GCAA 10.05 Community Complaint Management Protocol*, which provides guidance to GCAA operations in the management of incidents. If required, this investigation will include:

- Mobile continuous noise monitoring units to assess the noise levels being recorded at the complainant's location; and/or
- Reviewing shift reports to determine the location of machinery at the time of the complaint.

A register of all community complaints, updated monthly, will be made publicly available on the Ravensworth Complex website in accordance with Schedule 5, Condition 10 of PA09_0176.

7.5 Corrective / Preventative Actions

Table 7.1 summarises the potential noise related issues that may arise and the appropriate corrective action to be taken.

Table 7.1 Corrective / Preventative Actions

Issue/Opportunity	Corrective Action
Exceedance of PA09_0176 Noise Impact Assessment Criteria or EPL2652 Noise Limits	Investigation of a noise impacts assessment criteria exceedance as described in Section 6.1.2 , review real time noise alerts and monitoring data if available and undertaking noise mitigation measures as described in Section 6.1.1 for the operations where applicable. Report confirmed noise exceedance to the EPA, DPE as required by Section 7.3.2 . Report confirmed noise exceedance to senior management, as required by Section 7.2 . Where applicable follow up actions as outlined in Section 6.2.1 .
Exceedance of PA09_0176 Noise Acquisition Criteria	Investigation of a noise impacts assessment criteria exceedance as described in Section 6.1.2 , review real time noise alerts and monitoring data if available and undertaking noise mitigation measures as described in Section 6.1.1 for the operations where applicable. Report confirmed noise exceedance to the EPA, DPE as required by Section 7.3.2 . Report confirmed noise exceedance to senior management as required by Section 7.2 . Initiation of land acquisition process if required, as detailed in Section 6.4 .

Issue/Opportunity	Corrective Action
Community complaints (Noise)	<p>Investigation of complaint in accordance with <i>GCAA 10.05 Community Complaint Management Protocol</i>. Review real time noise alerts and monitoring data if available, undertake mitigating measures where applicable and provide feedback to the complainant (Section 7.4).</p> <p>Report complaint to senior management at Ravensworth Complex (Section 7.2)</p> <p>Provide feedback to mine planning and production personnel, where relevant.</p> <p>Assessment of impacts at the residence against noise impact assessment criteria and land acquisition criteria, if required.</p>
Identification of improved technologies	<p>As detailed within Section 5.3, the Ravensworth Complex will maintain awareness of new technologies for noise mitigation through participation in relevant industry groups.</p> <p>The feasibility of implementing any additional improved noise management technologies identified through participation in relevant industry groups will be reported by in the Annual Review (refer to Section 7.3.1).</p>

7.6 Records

In accordance with EPL 2652 conditions and as per the Ravensworth Complex document control procedures, all noise monitoring records will be:

- Kept in a legible form, or in a form that can readily be reduced to a legible form;
- Maintained on site for at least four years; and
- Produced in a legible form to any authorised officer of the EPA who asks to see them.

7.7 Review

The NMP is to be reviewed in accordance with PA 09_0176 Schedule 5 Condition 4 within 3 months of:

- The submission of the Annual Review;
- The submission of an incident report;
- The submission of an independent environmental audit (IEA); and
- Any modification to the conditions of PA09_0176.

Ravensworth Complex will review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Secretary.

The review process will also consider changes in environmental legislation and guidelines, and technology or operational procedures.

7.8 Independent Environmental Audit

In accordance with the Condition 8, Schedule 5 of PA09_0176, by June 2012 and every three years thereafter, the Ravensworth Complex will commission an Independent Environmental Audit (IEA) to the satisfaction of DPE.

The IEA will include an assessment of the adequacy of the NMP. Where necessary, following the IEA, the NMP will be updated and action taken to improve noise management **practices**.

8. References

NSW Department of Environment and Conservation (DEC), 2007. Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.

NSW Environmental Protection Agency (EPA), 1999. Environmental Criteria for Road Traffic Noise.

NSW Environmental Protection Agency (EPA), 2000. Industrial Noise Policy.

NSW Environmental Protection Agency (EPA), 2017. Industrial Noise Policy.

Standards Australia, AS 1055 – 1997: Acoustics – Description and Measurement of Environmental Noise (Parts 1-3).

Standards Australia 2018, AS 1055:2018 Acoustics: description and measurement of environmental noise;

Standards Australia, AS 2702-1984 Acoustics – Methods for the Measurement of Road Traffic Noise.

Standards Australia, AS 2923-1987 Ambient Air - Guide for Measurement of Horizontal Wind for Air Quality Applications.

Standards Australia, AS IEC 61672.1 – 2004: Electroacoustics – Sound Level Meters.

Standards Australia 2013, AS IEC 61672.1:2013 Electroacoustics – Sound level meters – Part 1: Specifications;

Umwelt (Australia) Pty Limited, 2010. Ravensworth Operations Environmental Assessment, Report prepared for Ravensworth Operations Pty Limited.

GCAA-625378177-10238 11.11 Noise Management

GCAA-625378177-10274 11.01 Environmental Reporting

9. Document Information

9.1 Change Information

Full details of the document history are recorded in the document control register, by version. A summary of the current change is provided in **Error! Reference source not found.** below.

Table 9.1 Change Information

Version	Date	Reviewers	Change Summary
0.1	20/12/13	S. Pigott	Incorporation of DA 104/96 Conditions
0.2	24/04/14	E&C Dept.	Annual review of management plan
0.3	08/08/14	E&C Dept.	Updated to reflect DP&E comments
1	23/10/14	E&C Dept.	Updated New Glencore template
2	05/11/2014	E & C Dept	Final revision to reflect comments from DoPE
3	13/11/2014	E & C Dept	Updated following site review
4	17/02/2015	E & C Dept	Updated prior to submission/ approval
5	18/02/2015	E & C Dept.	Updated receiver locations consistent with EA and Project Approval
6	01/06/2016	E & C Dept.	Annual Review of Management Plan - Updated to include modifications and SX46
7	24/05/2018	L Barben, L Bowden	Annual Review of Management Plan and incorporation of requirements under DA104/96 Ravensworth Underground.
8	16/01/2018	B Hubert, K Marchant	Annual Review of Management Plan and incorporation of requirements under DA104/96 Ravensworth Underground
9	31/08/2022	Umwelt, K Marchant	Updated NMP to the Glencore Template and align with GCAA 11.11 Noise Management protocol and DA 104/96 - Modification 10

A.1 Project Approval 09_0176 and Statement of Commitments

Source	Project Approval Condition	Section of NMP																																																			
Schedule 3 PA 09_0176	<p>Noise Criteria</p> <p>2. The Proponent shall ensure that the noise generated by mining operations at the Ravensworth Complex does not exceed the criteria in Table 2 at any residence on privately owned land or on more than 25 per cent of any privately owned land.</p> <p><i>Table 2: Noise Criteria dB(A)</i></p> <table><tr><th>Receiver Location</th><th>Receiver</th><th>Day (LAeq (15min))</th><th>Evening (LAeq (15min))</th><th>Night (LAeq (15min))</th><th>Night (LA1 (1 min))</th></tr><tr><td>R1</td><td>34 – Stapleton</td><td>48</td><td>48</td><td>48</td><td>49</td></tr><tr><td rowspan="2">R2</td><td>3 – A Bowman</td><td>35</td><td>35</td><td>35</td><td>45</td></tr><tr><td>13 – A Bowman</td><td>38</td><td>38</td><td>38</td><td>45</td></tr><tr><td rowspan="3">R3</td><td>Camberwell Village Central: 12 – Yates, 21 – Miller, 27 – Chisholm</td><td>37</td><td>37</td><td>37</td><td>45</td></tr><tr><td>38 – Ninness</td><td>36</td><td>36</td><td>36</td><td>45</td></tr><tr><td>All other privately-owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr><tr><td>R4</td><td>Camberwell Village North: All privately-owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr><tr><td>-</td><td>All other privately-owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr></table>	Receiver Location	Receiver	Day (LAeq (15min))	Evening (LAeq (15min))	Night (LAeq (15min))	Night (LA1 (1 min))	R1	34 – Stapleton	48	48	48	49	R2	3 – A Bowman	35	35	35	45	13 – A Bowman	38	38	38	45	R3	Camberwell Village Central: 12 – Yates, 21 – Miller, 27 – Chisholm	37	37	37	45	38 – Ninness	36	36	36	45	All other privately-owned land	35	35	35	45	R4	Camberwell Village North: All privately-owned land	35	35	35	45	-	All other privately-owned land	35	35	35	45	4.1, Table 4.2
	Receiver Location	Receiver	Day (LAeq (15min))	Evening (LAeq (15min))	Night (LAeq (15min))	Night (LA1 (1 min))																																															
	R1	34 – Stapleton	48	48	48	49																																															
	R2	3 – A Bowman	35	35	35	45																																															
		13 – A Bowman	38	38	38	45																																															
	R3	Camberwell Village Central: 12 – Yates, 21 – Miller, 27 – Chisholm	37	37	37	45																																															
		38 – Ninness	36	36	36	45																																															
		All other privately-owned land	35	35	35	45																																															
	R4	Camberwell Village North: All privately-owned land	35	35	35	45																																															
	-	All other privately-owned land	35	35	35	45																																															
<p><i>Notes:</i></p> <ul style="list-style-type: none">To interpret the locations referred to Table 2, see the applicable figure in Appendix 5.Noise generated by the project is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy. <p>However, these noise criteria do not apply if the Proponent has an agreement with the relevant owner/s of these residences / land to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.</p>																																																					

Source	Project Approval Condition	Section of NMP																									
Schedule 3 PA 09_0176	<p>Noise Acquisition Criteria</p> <p>3. If the noise generated by the Ravensworth Complex exceeds the criteria in Table 3 at any residence on privately-owned land or on more than 25 per cent of any privately-owned land, then upon receiving a written request for acquisition from the landowner, the Proponent shall acquire the land in accordance with the procedures in conditions 6-7 of schedule 4.</p> <p><i>Table 3: Noise acquisition criteria dB(A) LAeq (15min)</i></p> <table><tr><th>Receiver Location</th><th>Receiver</th><th>Day (LAeq (15min))</th><th>Evening (LAeq (15min))</th><th>Night (LAeq (15min))</th></tr><tr><td>R2</td><td>All privately-owned land</td><td>40</td><td>40</td><td>40</td></tr><tr><td>R3</td><td>All privately-owned land</td><td>54</td><td>54</td><td>49</td></tr><tr><td>R4</td><td>All privately-owned land</td><td>47</td><td>47</td><td>47</td></tr><tr><td>-</td><td>All other privately-owned land</td><td>40</td><td>40</td><td>40</td></tr></table> <p>Notes:</p> <ul style="list-style-type: none">To interpret the locations referred to Table 3, see the applicable figure in Appendix 5.Noise generated by the project is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.For this condition to apply, the exceedance of the criteria must be systemic.	Receiver Location	Receiver	Day (LAeq (15min))	Evening (LAeq (15min))	Night (LAeq (15min))	R2	All privately-owned land	40	40	40	R3	All privately-owned land	54	54	49	R4	All privately-owned land	47	47	47	-	All other privately-owned land	40	40	40	4.2, Table 4.3
	Receiver Location	Receiver	Day (LAeq (15min))	Evening (LAeq (15min))	Night (LAeq (15min))																						
	R2	All privately-owned land	40	40	40																						
	R3	All privately-owned land	54	54	49																						
	R4	All privately-owned land	47	47	47																						
-	All other privately-owned land	40	40	40																							
Schedule 3 PA 09_0176	<p>Cumulative Noise Criteria</p> <p>4. Except for the noise-affected land in Table 1, the Proponent shall implement all reasonable and feasible measures to ensure that the noise generated by the Ravensworth Complex combined with the noise generated by other mines does not exceed the criteria in Table 4 at any residence on privately-owned land or on more than 25 per cent of any privately-owned land.</p> <p><i>Table 4: Cumulative noise criteria dB(A) LAeq (period)</i></p> <table><tr><th>Location</th><th>Day</th><th>Evening</th><th>Night</th></tr><tr><td>R3 and R4 – Camberwell Village</td><td>55</td><td>45</td><td>40</td></tr><tr><td>All other privately-owned land</td><td>50</td><td>45</td><td>40</td></tr></table> <p>Notes:</p> <ul style="list-style-type: none">To interpret the locations referred to Table 4, see the applicable figure in Appendix 5.Cumulative noise is to be measured in accordance with the relevant requirements, and exemptions(including certain meteorological conditions), of the NSW Industrial Noise Policy.	Location	Day	Evening	Night	R3 and R4 – Camberwell Village	55	45	40	All other privately-owned land	50	45	40	4.3, 6.2.2 Table 4.4													
	Location	Day	Evening	Night																							
	R3 and R4 – Camberwell Village	55	45	40																							
	All other privately-owned land	50	45	40																							

Source	Project Approval Condition	Section of NMP												
Schedule 3 PA 09_0176	<p>Cumulative Noise Acquisition Criteria</p> <p>5. If the cumulative noise generated by the Ravensworth Complex combined with the noise generated by other mines exceeds the criteria in Table 5 at any residence on privately-owned land or on more than 25 per cent of any privately-owned land, then upon receiving a written request from the landowner, the Proponent shall acquire the land on as equitable basis as possible with the relevant mines, in accordance with the procedures in conditions 6-7 of schedule 4.</p> <p><i>Table 5: Cumulative noise acquisition criteria dB(A) LAeq (period)</i></p> <table><tr><th>Location</th><th>Day</th><th>Evening</th><th>Night</th></tr><tr><td>R3 and R4 – Camberwell Village</td><td>60</td><td>50</td><td>45</td></tr><tr><td>All other privately-owned land</td><td>55</td><td>50</td><td>45</td></tr></table> <p>Notes:</p> <ul style="list-style-type: none">To interpret the locations referred to Table 5, see the applicable figure in Appendix 5.Cumulative noise is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.For this condition to apply, the exceedance of the criteria must be systemic.	Location	Day	Evening	Night	R3 and R4 – Camberwell Village	60	50	45	All other privately-owned land	55	50	45	4.3
	Location	Day	Evening	Night										
R3 and R4 – Camberwell Village	60	50	45											
All other privately-owned land	55	50	45											

Source	Project Approval Condition	Section of NMP																									
Schedule 3 PA 09_0176	<p>Additional Noise Mitigation Measures</p> <p>6. Upon receiving a written request from the owner of:</p> <ul style="list-style-type: none">a) Residence 34 – Stapleton;b) Residence 13 – A Bowman; orc) any other residence on privately-owned land where subsequent operational noise monitoring shows the noise generated by the Ravensworth Complex exceeds the noise limits in Table 6, <p>the Proponent shall implement additional reasonable and feasible noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the residence in consultation with the owner.</p> <p>If within three months of receiving this request from the landowner, the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.</p> <p><i>Table 6: Additional noise mitigation criteria dB(A) LAeq (15min)</i></p> <table><tr><th>Receiver Location</th><th>Receiver</th><th>Day (LAeq (15min)</th><th>Evening (LAeq</th><th>Night (LAeq</th></tr><tr><td>R2</td><td>All privately owned land</td><td>37</td><td>37</td><td>37</td></tr><tr><td>R3</td><td>All privately owned land</td><td>51</td><td>51</td><td>46</td></tr><tr><td>R4</td><td>All privately owned land</td><td>44</td><td>44</td><td>44</td></tr><tr><td>-</td><td>All other privately owned land</td><td>37</td><td>37</td><td>37</td></tr></table> <p><i>Notes:</i></p> <ul style="list-style-type: none">To interpret the locations referred to Table 6, see the applicable figure in Appendix 5.Noise generated by the project is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.For this condition to apply, the exceedance of the criteria must be systemic.	Receiver Location	Receiver	Day (LAeq (15min)	Evening (LAeq	Night (LAeq	R2	All privately owned land	37	37	37	R3	All privately owned land	51	51	46	R4	All privately owned land	44	44	44	-	All other privately owned land	37	37	37	4.4
	Receiver Location	Receiver	Day (LAeq (15min)	Evening (LAeq	Night (LAeq																						
	R2	All privately owned land	37	37	37																						
	R3	All privately owned land	51	51	46																						
	R4	All privately owned land	44	44	44																						
-	All other privately owned land	37	37	37																							
Schedule 3 PA 09_0176	<p>Operating Conditions</p> <p>8. The Proponent shall:</p> <ul style="list-style-type: none">(a) implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the operational, low frequency and rail noise generated by the Ravensworth Complex;(b) regularly assess the real-time noise monitoring and meteorological forecasting data and relocate, modify and/or suspend operations to ensure compliance with the relevant conditions of this approval; and(c) coordinate the noise management on site with the noise management at nearby mines to minimise the cumulative noise impacts of the mines, to the satisfaction of the Secretary.	5.4.1																									
		5.4.2																									
		5.2.1																									

Source	Project Approval Condition	Section of NMP
Schedule 3 PA 09_0176	Noise Management Plan	
	9. The Proponent shall prepare and implement a Noise Management Plan for the Ravensworth Complex to the satisfaction of the Secretary. This plan must:	3.2
	(a) be prepared in consultation with EPA, and be submitted to the Secretary for approval by the end of June 2011;	5
	(b) describe the noise mitigation measures that would be implemented to ensure compliance with the relevant conditions of this approval, including a real-time noise management system that	
Schedule 5	employs both reactive and proactive mitigation measures; and	
	(c) include a noise monitoring program that:	6
	<ul style="list-style-type: none"> uses a combination of real time and supplementary attended monitoring measures to evaluate the performance of the Ravensworth Complex; and includes a protocol for determining exceedances of the relevant conditions of this approval; and 	
	(d) include a protocol that has been prepared in consultation with the owners of nearby mines to minimise the cumulative noise impacts of the mines.	5.2.1
Schedule 5	Management Plan Requirements	
	2. The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	1.7
	(a) detailed baseline data;	
	(b) a description of:	
	<ul style="list-style-type: none"> the relevant statutory requirements (including any relevant approval, licence or lease conditions); 	3.1
	<ul style="list-style-type: none"> any relevant limits or performance measures/criteria; 	4.0
	<ul style="list-style-type: none"> the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures; 	6.1.1
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	5.0
	(d) a program to monitor and report on the:	6.0
	<ul style="list-style-type: none"> impacts and environmental performance of the project; effectiveness of any management measures (see (c) above); 	
	(e) a contingency plan to manage any unpredicted impacts and their consequences;	6.2 & 7.3.2
	(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	5.4
	(g) a protocol for managing and reporting any:	
	<ul style="list-style-type: none"> incidents; complaints; non-compliances with the conditions of this approval and statutory requirements; and exceedances of the impact assessment criteria and/or performance criteria; and 	7.3.2
	(h) a protocol for periodic review of the plan.	7.4
	Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans	7.3.2
		7.7

Table 3 – Ravensworth Operations Project Statement of Commitments from PA09_0176

Statement of Commitments		Section of NMP
6.6.2	<p>The Proponent will continue to implement the following controls to manage noise generation:</p> <ul style="list-style-type: none"> • use of real time directional noise monitors incorporating automatic alarms that will enable mine operators to take a proactive approach to minimising noise impacts by modifying operations when monitoring indicates that potential impacts may occur. • mining equipment is maintained to high standards to ensure high availability and to meet noise emission criteria; • operations on outer dump faces or elevated dumps in sensitive areas are restricted where possible during adverse weather conditions in accordance with the Proponent's noise performance monitoring system; • all new equipment is procured against a specification for noise emission to meet noise criteria at the nearest private residences for total operations; and • the majority of the coal crushing plant and coal handling facilities are enclosed in buildings and protective structures that effectively contain noise generated in these processes to the close proximity of the plants. 	5.0
6.6.3	The Proponent will implement mine planning procedures that minimise the potential for adverse noise impacts. Where possible, machinery will be selectively located at lower elevations in the pit during times when noise levels at the receivers are likely to be exacerbated by weather conditions.	5.1
6.6.4	The Proponent will install a continuous noise monitoring unit between the Project and Camberwell Village that is capable of discerning the direction from which a noise emanates and the contribution the noise source makes to the cumulative noise level.	6.1.1
6.6.5	The Proponent will investigate any reported exceedances of noise criteria at private residences on a case by case basis. Should site specific monitoring or real-time monitors indicate adverse noise impacts from the Project, the Proponent will investigate reasonable and feasible measures to mitigate noise at the affected receiver.	7.2

Source	Condition	Location in document									
DA 104/96	Schedule 2 Condition 10 With approval of the Director-General, the Applicant may integrate any strategy, plan, program, report, review or audit required by this consent with any similar strategy, plan, program, report, review or audit for other components of the Ravensworth mine complex	N/A									
	Schedule 2 Condition 11 With approval of the Director-General, the Applicant may submit any strategy, plan or program required by this consent on a progressive basis.	N/A									
	Schedule 3 Condition 12 – Noise Criteria The Applicant shall ensure that the noise generated by the development does not exceed the criteria in Table 3 at any residence on privately-owned land or on more than 25% of any privately owned land. Table 3: <i>Table 3: Noise Criteria dB(A)</i> <table><tr><th>Receiver</th><th>Day (<i>L_{Aeq}</i> (15min))</th><th>Evening (<i>L_{Aeq}</i> (15min))</th><th>Night (<i>L_{Aeq}</i> (15min))</th><th>Night (<i>L_{A1}</i> (1 min))</th></tr><tr><td>Any residence on any privately owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr></table> <i>Note: Noise generated by the development is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.</i> However, these noise criteria do not apply if the applicant has an agreement with the relevant owner/s of these residences/land to generate higher noise levels, and the Applicant has advised the department in writing of the terms of this agreement.	Receiver	Day (<i>L_{Aeq}</i> (15min))	Evening (<i>L_{Aeq}</i> (15min))	Night (<i>L_{Aeq}</i> (15min))	Night (<i>L_{A1}</i> (1 min))	Any residence on any privately owned land	35	35	35	45
Receiver	Day (<i>L_{Aeq}</i> (15min))	Evening (<i>L_{Aeq}</i> (15min))	Night (<i>L_{Aeq}</i> (15min))	Night (<i>L_{A1}</i> (1 min))							
Any residence on any privately owned land	35	35	35	45							

	<p>Schedule 3 Condition 13 – Operating Conditions</p> <p>The Applicant shall:</p> <ul style="list-style-type: none"> (a) implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the noise generated by the development; (b) regularly assess the meteorological data and relocate, modify and/or suspend operations to ensure compliance with the relevant conditions of this approval (c) co-ordinate the noise management on site with the noise management at nearby mines, including the Ravensworth Operations Project, to minimise the cumulative noise impacts of the mines, to the satisfaction of the Director General. 	5.0
	<p>Schedule 3 Condition 14 – Noise Management Plan</p> <p>The applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Director-General. This plan must:</p> <ul style="list-style-type: none"> (a) be prepared in consultation with the EPA, and be submitted to the Director-General for approval by the end of October 2013; (b) describe the noise mitigation measures that would be implemented to ensure compliance with the relevant conditions of this approval; and (c) include a noise monitoring program that includes a protocol for determining exceedance of the relevant conditions of this approval; and (d) include a protocol that has been prepared in consultation with the owners of nearby mines to minimise the cumulative noise impacts of the mines 	This NMP
	<p>Schedule 4 Condition 1 – Adaptive management</p> <p>The Applicant must assess and manage development-related risks to ensure that there are no exceedance of the performance measures or associated performance indicators and impact assessment criteria in Schedule 3. Any exceedance of these performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.</p> <p>Where any exceedance of the these performance measures has occurred, the Applicant must, at the earliest opportunity:</p> <ul style="list-style-type: none"> (a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur; (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the department describing those options and any preferred remediation measures or other course of action; and (c) implement remediation measures as directed by the Director-General, to the satisfaction of the Director-General. 	1.4 6.1.1
	<p>Schedule 4 Condition 3 – Revision of Strategies, Plans and Programs</p> <p>Within 3 months of:</p> <ul style="list-style-type: none"> (a) the submission of an annual review under condition 2 above; (b) the submission of an incident report under condition 5 below (c) the submission of an audit under condition 7 below; and (d) any modification to the conditions of this consent, <p>the Applicant shall review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Director-General.</p>	7.7
	<p>Schedule 4 Condition 5 – Incident Reporting</p> <p>The Applicant shall notify, at the earliest opportunity, the Director-General and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. For any other incident associated with the development, the Applicant shall notify the Director-general and any other relevant agencies as soon as practicable after the Applicant becomes aware of the incident. Within 7 days of the date of the incident, the Applicant shall provide the Director-General and any relevant agencies with a detailed report on the incident, and as such further reports as may be requested.</p>	7.3.1
	<p>Schedule 4 Condition 6 – Regular Reporting</p> <p>The Applicant shall provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements on any plans or programs approved under the conditions of this consent.</p>	7.1

	<p>Schedule 4 Condition 9 – Access to Information</p> <p>From 30 September 2013, the Applicant shall:</p> <p>(a) make copies of the following publically available on its website:</p> <ul style="list-style-type: none">the EAs;all current statutory approvals for the developmentall approved strategies, plans and programs required under the conditions of this consent;a summary of the monitoring results of the development, which have been reports in accordance with the various plans and programs approved under the conditions of this consent;a complaints register, updated on a monthly basis;minutes of CCC meetings;the annual reviews (over the last 5 years)any independent environmental audit, and the Applicant’s response to the recommendations in any audit;any other matter required by the Director-General; and <p>(b) keep this information up-to-date to the satisfaction of the Director-General.</p>	7.1										
EPL 2652	<p>L5 Noise Limits –</p> <p>L5.1</p> <p>Noise generated at the premises must not exceed the noise limits presented in the table below.</p> <table><tr><th>Location</th><th>Day LAeq(15 minute)</th><th>Evening LAeq(15 minute)</th><th>Night LAeq(15 minute)</th><th>Night LA1(1minute)</th></tr><tr><td>All other privately-owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr></table>	Location	Day LAeq(15 minute)	Evening LAeq(15 minute)	Night LAeq(15 minute)	Night LA1(1minute)	All other privately-owned land	35	35	35	45	4.1
Location	Day LAeq(15 minute)	Evening LAeq(15 minute)	Night LAeq(15 minute)	Night LA1(1minute)								
All other privately-owned land	35	35	35	45								
	<p>Condition M1 – Monitoring Records</p> <p>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.</p> <p>M1.2 All records are required to be kept by this licence must be:</p> <p>(a) in a legible form, or in a form that can readily be reduced to a legible form;</p> <p>(b) kept for at least 4 years after the monitoring or event to which they relate took place; and</p> <p>(c) produced in a legible form to any authorised officer of the EPA who asks to see them.</p> <p>M1.2 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:</p> <p>(a) the date(s) on which the sample was taken</p> <p>(b) the time(s) on which the sample was collected</p> <p>(c) the point at which the sample was taken; and</p> <p>(d) the name of the person who collected the sample</p>	7.6										
	<p>Condition M7 Telephone complaints line</p> <p>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.</p> <p>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.</p>	7.4										
	<p>Condition M11 – Noise Monitoring</p> <p>M11.1 To determine compliance with Condition L5.1, attended noise monitoring must:</p> <p>(a) be conducted at the locations, or locations representative of the locations listed in Condition L5.1;</p> <p>(b) Occur at least once every quarter during the reporting period;</p> <p>(c) Occur during the night period to ensure compliance under worst case meteorological conditions ; and</p> <p>(d) Each quarterly attended noise survey must comprise a minimum 15 minute measurement at each location and occur for at least three consecutive 24 hour periods.</p> <p>Note 1:</p> <p>For determining compliance with noise limit location all other privately-owned land as referred to in condition L5.1, noise can be undertaken:</p> <p>(I) A t the most noise affected privately owned dwelling that is not subject to a private agreement with the licensee as to an alternative level or other private agreement; or</p> <p>(II) An alternate method approved in writing by the EPA</p> <p>Note 2:</p> <p>The EPA may require the licensee to undertake additional noise compliance monitoring should the EPA consider the amenity of local residents is being impacted by noise from the premises.</p>	6.0										

A.2 Correspondence and Consultation

Date	Stakeholder	Summary of Consultation	Ravensworth Contact
1/04/2014	Environment Protection Authority (EPA) Mitch Bennett	Draft copy of the BMP sent via letter and file transfer site, requesting comment back by 21/04/2014	Andrew Kelly (Ravensworth Complex)
02/04/2014	Bill George (EPA)	Letter received from EPA stating that the EPA does not review these documents	Greg Newton (Ravensworth Open Cut)
07/04/2014	Bill George (EPA)	Email sent to EPA confirming which Management plans were being referred to in the letter dated 02/04/2014	Greg Newton (Ravensworth Open Cut)
09/04/2014	Bill George (EPA)	Email received from EPA confirming that the letter dated 02/04/2014 referred to all the management plans submitted to EPA	Greg Newton (Ravensworth Open Cut)



Your reference: DOC19/94031-01, EF13/3486
Our reference: Bill George 02 490868213
Contact: hunter.region@epa.nsw.gov.au
Electronic correspondence to: hunter.region@epa.nsw.gov.au

Ravensworth Operations Pty Limited
PO Box 294
MUSWELLBROOK NSW 2333

Attention: Mr Greg Newton

Dear Mr Newton

Ravensworth Mine Complex Management Plan

Thank you for forwarding the subject plan for our records.

The Environment Protection Authority (EPA) encourages the development of such plans to ensure that proponents have determined how they will meet their statutory obligations and designated environmental objectives. However, the EPA does not review these documents as our role is to set environmental objectives for environmental management, not to be directly involved in the development of strategies to achieve those objectives.

Should you have any questions please phone me on 02 4908 6821.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Bill George', followed by the date '2.7.17'.

BILL GEORGE
A/Head Regional Operations Unit – Hunter
Environment Protection Authority

PO Box 488G Newcastle NSW 2300
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Tel: (02) 4908 6800 Fax: (02) 4908 6810
ABN 43 692 285 758
www.epa.nsw.gov.au



Planning Services
Resource Assessments
Contact: Genevieve Seed
Phone: 9274 6489
Email: genevieve.seed@planning.nsw.gov.au

Mr Sam Palmer
Environment and Community Coordinator
Ravensworth Open Cut
PO Box 294
Muswellbrook NSW 2333

Dear Mr Palmer

Ravensworth Complex Management Plans

The Department has reviewed the below management plans for the Ravensworth Complex, which have been prepared in accordance with the Ravensworth Operations Project (MP 09_0176):

- Noise Management Plan, dated August 2018 (condition 9, Schedule 3);
- Air Quality and Greenhouse Gas Management Plan, dated August 2018 (condition 24 of Schedule 3);
- Biodiversity Management Plan, dated August 2018 (condition 38 of Schedule 3);
- Heritage Management Plan, dated August 2018 (condition 42 of Schedule 3); and
- Environmental Management Strategy, dated August 2018 (condition 1 of Schedule 5).

The Department considers that the above management plans adequately address the relevant requirements of MP 09_0176 and consequently the Secretary has approved these plans.

Should you have any enquiries in relation to this matter, please contact Genevieve Seed on the details above.

Yours sincerely

A handwritten signature in blue ink that reads 'Howard Reed'.

Howard Reed 10.9.18
Director
Resource Assessments
as nominee of the Secretary