

# Project Approval

## Section 75J of the *Environmental Planning & Assessment Act 1979*

I approve the project application referred to in schedule 1, subject to the conditions in schedules 2 to 5.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.



The Hon Tony Kelly MLC  
Minister for Planning

Sydney

11 FEB 2011

2011

### SCHEDULE 1

**Application Number:**

09\_0176

**Proponent:**

Ravensworth Operations Pty Limited

**Approval Authority:**

Minister for Planning

**Land:**

See Appendix 1

**Project:**

Ravensworth Operations Project

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## DEFINITIONS

|                                  |                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Annual Review                    | The review required by condition 3 of schedule 5                                                                                                                                                                                                                                                                                                          |
| BCA                              | Building Code of Australia                                                                                                                                                                                                                                                                                                                                |
| CCC                              | Community Consultative Committee                                                                                                                                                                                                                                                                                                                          |
| Conditions of this approval      | Conditions contained in schedules 1 to 5                                                                                                                                                                                                                                                                                                                  |
| Council                          | Singleton Shire Council                                                                                                                                                                                                                                                                                                                                   |
| Day                              | The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays                                                                                                                                                                                                                                                           |
| DECCW                            | Department of Environment, Climate Change and Water                                                                                                                                                                                                                                                                                                       |
| Department                       | Department of Planning                                                                                                                                                                                                                                                                                                                                    |
| Director-General                 | Director-General of the Department, or delegate                                                                                                                                                                                                                                                                                                           |
| EA                               | Environmental Assessment titled <i>Ravensthorpe Operations Project Environmental Assessment</i> (6 volumes), dated February 2010, including the Response to Submissions                                                                                                                                                                                   |
| EEC                              | Endangered ecological community, as defined under the <i>Threatened Species Conservation Act 1995</i>                                                                                                                                                                                                                                                     |
| EP&A Act                         | <i>Environmental Planning and Assessment Act 1979</i>                                                                                                                                                                                                                                                                                                     |
| EP&A Regulation                  | <i>Environmental Planning and Assessment Regulation 2000</i>                                                                                                                                                                                                                                                                                              |
| EPL                              | Environment Protection Licence issued under the POEO Act                                                                                                                                                                                                                                                                                                  |
| Evening                          | The period from 6pm to 10pm                                                                                                                                                                                                                                                                                                                               |
| Feasible                         | Feasible relates to engineering considerations and what is practical to build or carry out                                                                                                                                                                                                                                                                |
| Heritage Branch                  | Heritage Branch of the Department                                                                                                                                                                                                                                                                                                                         |
| Incident                         | A set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in this approval                                                                                                                                                                        |
| I&I NSW                          | Department of Industry and Investment, trading as Industry & Investment NSW                                                                                                                                                                                                                                                                               |
| Land                             | In general, the definition of land is consistent with the definition in the EP&A Act. However, in relation to the noise and air quality conditions in schedules 3 and 4 of this approval it means the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this approval |
| Material harm to the environment | Harm to the environment is material if it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial                                                                                                                                                                                                  |
| Mining operations                | Includes all overburden removal and coal extraction, processing, handling, storage and transportation activities carried out on site                                                                                                                                                                                                                      |
| Minister                         | Minister for Planning, or delegate                                                                                                                                                                                                                                                                                                                        |
| Mitigation                       | Activities associated with reducing the impacts of the project                                                                                                                                                                                                                                                                                            |
| MSB                              | Mine Subsidence Board                                                                                                                                                                                                                                                                                                                                     |
| Negligible                       | Small and unimportant, such as to be not worth considering                                                                                                                                                                                                                                                                                                |
| Night                            | The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays                                                                                                                                                                                                                                                         |
| NOW                              | NSW Office of Water                                                                                                                                                                                                                                                                                                                                       |
| Offset strategy                  | The conservation and enhancement program outlined in Table 16, described in the EA, and depicted conceptually in the figure in Appendix 7.                                                                                                                                                                                                                |
| POEO Act                         | <i>Protection of the Environment Operations Act 1997</i>                                                                                                                                                                                                                                                                                                  |
| Previous EAs                     | The previous environmental impact assessments for open cut operations at the Ravensworth mine complex, as listed in Appendix 4                                                                                                                                                                                                                            |
| Privately-owned land             | Land that is not owned by a public agency or a mining company (or its subsidiary)                                                                                                                                                                                                                                                                         |
| Project                          | The development as described in the project application and EA, and to the extent not covered by these, the previous EAs                                                                                                                                                                                                                                  |
| Proponent                        | Ravensthorpe Operations Pty Limited, or its successors in title                                                                                                                                                                                                                                                                                           |
| Public infrastructure            | Linear and related infrastructure that provides services to the general public, such as roads, railways, water supply, electricity, gas supply, drainage, sewerage, telephony, telecommunications etc                                                                                                                                                     |
| Ravensthorpe Mine Complex        | The combined operations of the project (including the former Ravensworth West mine, Narama mine, Cumnock No.1 mine, RCT and surface facilities associated with the RUM) and the underground operations associated with the RUM.                                                                                                                           |
| RCHPP                            | Ravensthorpe Coal Handling and Preparation Plant                                                                                                                                                                                                                                                                                                          |
| RCT                              | Ravensthorpe Coal Terminal                                                                                                                                                                                                                                                                                                                                |
| Reasonable                       | Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements                                                                                                                  |
| Rehabilitation                   | The treatment or management of land disturbed by the project for the purpose of establishing a safe, stable and non-polluting environment                                                                                                                                                                                                                 |
| Response to submissions          | The Proponent's responses to issues raised in submissions, including those titled <i>Ravensthorpe Operations Project Response to Submissions</i> , dated May 2010, <i>Ravensthorpe Operations Project – Response to Submissions, Roads and Traffic Authority and Muswellbrook Coal Company Limited</i> , dated 20 August 2010 and                         |

|                          |                                                                                                                                     |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
|                          | <i>Ravensworth Operations Project – Proposed Refinements to Project and Conservation Offset Areas</i> , dated 26 October 2010       |
| ROM                      | Run of Mine                                                                                                                         |
| RUM                      | Ravensworth Underground Mine (operating under DA 104/96)                                                                            |
| RTA                      | Roads and Traffic Authority                                                                                                         |
| Site                     | The land referred to in schedule 1, and listed in Appendix 1, including any subdivided lot created from any of the listed land lots |
| Statement of commitments | The Proponent's commitments in Appendix 3                                                                                           |

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## SCHEDULE 2 ADMINISTRATIVE CONDITIONS

### OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the project.

### TERMS OF APPROVAL

2. The Proponent shall carry out the project generally in accordance with the:
  - (a) EA;
  - (b) statement of commitments; and
  - (c) conditions of this approval.

*Notes:*

- The general layout of the project is shown in Appendix 2.
- The statement of commitments is reproduced in Appendix 3 (excluding the commitments which are directly reflected in, or inconsistent with, the conditions of this approval).

3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.
4. The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
  - (a) any reports, strategies, plans, programs, reviews, audits or correspondence that are submitted by the Proponent in accordance with this approval; and
  - (b) the implementation of any actions or measures contained in these documents.

### LIMITS ON APPROVAL

5. Mining operations for the project may take place until 31 December 2039.

*Note: Under this approval, the Proponent is required to rehabilitate the site and perform additional undertakings to the satisfaction of the Director-General and I&I NSW. Consequently this approval will continue to apply in all other respects other than the right to conduct mining operations until the site has been properly rehabilitated.*

6. The Proponent shall not extract more than:
  - (a) 16 million tonnes of ROM coal from the open cut mining operations in a calendar year; and
  - (b) 21 million tonnes of ROM coal from the combined Ravensworth mine complex in a calendar year.
7. The Proponent shall:
  - (a) not transport coal from the site by road (except in an emergency situation and with the prior approval of the Director-General in consultation with Council); and
  - (b) restrict product coal transport to/from the RCHPP/RCT to a maximum of:
    - 20 million tonnes of product coal in a calendar year; and
    - 18 train movements (average) a day,for the combined Ravensworth mine complex, including any product coal transported for third parties.

*Note: For the purposes of this condition, each train entering and exiting the site is classified as 2 train movements; a day refers to the 24 hours from midnight to midnight the next day; and train movements do not include transfer of coal reject between parts of the Ravensworth mine complex.*

### SURRENDER OF CONSENTS

8. By the end of December 2011, or as otherwise agreed by the Director-General, the Proponent shall surrender all existing development consents/approvals for the project in accordance with sections 75YA and 104A of the EP&A Act, and to the satisfaction of the Director-General.

Prior to surrendering any development consents for the RCHPP/RCT, the Proponent shall demonstrate that it has:

- (a) the legal ability to surrender such consents; and
- (b) used its best endeavours to reach agreements with the joint venture partners of the RCHPP/RCT in relation to the joint venture partners' rights over the RCHPP/RCT.

*Notes:*

- This approval will apply to all components of the Ravensworth mine complex's open cut operations, as well as the surface components of the RUM, from the date of approval. The existing management and monitoring plans/strategies/programs/protocols/committees for the project will continue to apply until the approval of the comparable plan/strategy/program/protocol/committee under this approval;
- The existing approvals are identified in Appendix 4.

## STRUCTURAL ADEQUACY

9. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA and MSB.

### Notes:

- Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works;
- Part 8 of the EP&A Regulation sets out the requirements for the certification of the project;
- The project is located in the Patrick Plains Mine Subsidence District. Under Section 15 of the Mine Subsidence Compensation Act 1961, the Proponent is required to obtain the MSB's approval before constructing any improvements on the site.

## DEMOLITION

10. The Proponent shall ensure that all demolition work is carried out in accordance with AS 2601-2001: *The Demolition of Structures*, or its latest version.

## PROTECTION OF PUBLIC INFRASTRUCTURE

11. Unless the Proponent and the applicable authority agree otherwise, the Proponent shall:
- (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and
  - (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the project,
- except where such works have been compensated through the *Mining Act 1992* or the planning agreement referred to in condition 14 below.

## OPERATION OF PLANT AND EQUIPMENT

12. The Proponent shall ensure that all plant and equipment used at the site is:
- (a) maintained in a proper and efficient condition; and
  - (b) operated in a proper and efficient manner.

## STAGED SUBMISSION OF STRATEGIES, PLANS AND PROGRAMS

13. With the approval of the Director-General, the Proponent may:
- (a) submit any strategy, plan or program required by this approval on a progressive basis; and
  - (b) combine any strategy, plan or program required by this approval (including the CCC) with any similar strategy, plan or program for the RUM.

*Note: For the avoidance of doubt, existing approved management plans, strategies or monitoring programs for the open cut operations of the Ravensworth mine complex will continue to apply until the approval of a similar plan, strategy or program under this approval, or until the surrender of existing approvals (see condition 8 above).*

## PLANNING AGREEMENT

14. By the end of June 2011, unless otherwise agreed by the Director-General, the Proponent shall use its best endeavours to enter into a planning agreement with Council to provide development contributions to Council for the project, in accordance with Division 6 of Part 4 of the EP&A Act.

If the Proponent and Council cannot agree on the level or composition of the development contributions, then either party may refer the matter to the Director-General for resolution.

### SCHEDULE 3 ENVIRONMENTAL PERFORMANCE CONDITIONS

#### ACQUISITION UPON REQUEST

##### Acquisition Upon Request

1. Upon receiving a written request for acquisition from an owner of the land listed in Table 1, the Proponent shall acquire the land in accordance with the procedures in conditions 6-7 of schedule 4.

*Table 1: Land subject to acquisition upon request*

| <b>Receiver No.</b> | <b>Receiver</b> | <b>Acquisition Basis</b> |
|---------------------|-----------------|--------------------------|
| 3                   | A Bowman        | Air quality              |
| 6A, 6B              | Moxey           | Air quality              |
| 34                  | Stapleton       | Air quality and Noise    |

*Note: To interpret the locations referred to in Table 1, see the applicable figure in Appendix 5.*

#### NOISE

##### Noise Criteria

2. The Proponent shall ensure that the noise generated by mining operations at the Ravensworth mine 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.

*Table 2: Noise Criteria dB(A)*

| <b>Receiver Location</b> | <b>Receiver</b>                                                          | <b>Day<br/>(<i>L<sub>Aeq</sub></i> (15min))</b> | <b>Evening<br/>(<i>L<sub>Aeq</sub></i> (15min))</b> | <b>Night<br/>(<i>L<sub>Aeq</sub></i> (15min))</b> | <b>Night<br/>(<i>L<sub>A1</sub></i> (1 min))</b> |
|--------------------------|--------------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------------|---------------------------------------------------|--------------------------------------------------|
| R1                       | 34 – Stapleton                                                           | 48                                              | 48                                                  | 48                                                | 49                                               |
| R2                       | 3 – A Bowman                                                             | 35                                              | 35                                                  | 35                                                | 45                                               |
|                          | 13 – A Bowman                                                            | 38                                              | 38                                                  | 38                                                | 45                                               |
|                          | Camberwell Village Central:<br>12 – Yates, 21 – Miller,<br>27 – Chisholm | 37                                              | 37                                                  | 37                                                | 45                                               |
| R3                       | 38 – Ninness                                                             | 36                                              | 36                                                  | 36                                                | 45                                               |
|                          | All other privately-owned land                                           | 35                                              | 35                                                  | 35                                                | 45                                               |
| R4                       | Camberwell Village North:<br>All privately-owned land                    | 35                                              | 35                                                  | 35                                                | 45                                               |
| -                        | All other privately-owned land                                           | 35                                              | 35                                                  | 35                                                | 45                                               |

*Notes:*

- 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.

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.

##### Noise Acquisition Criteria

3. If the noise generated by the Ravensworth mine 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.

Table 3: Noise acquisition criteria dB(A)  $L_{Aeq}(15min)$

| Receiver Location | Receiver                       | Day<br>( $L_{Aeq}(15min)$ ) | Evening<br>( $L_{Aeq}(15min)$ ) | Night<br>( $L_{Aeq}(15min)$ ) |
|-------------------|--------------------------------|-----------------------------|---------------------------------|-------------------------------|
| 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                            |

Notes:

- 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.

### Cumulative Noise Criteria

- 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 mine 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.

Table 4: Cumulative noise criteria dB(A)  $L_{Aeq}(period)$

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

Notes:

- 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.

### Cumulative Noise Acquisition Criteria

- If the cumulative noise generated by the Ravensworth mine 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.

Table 5: Cumulative noise acquisition criteria dB(A)  $L_{Aeq}(period)$

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

Notes:

- 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.

### Additional Noise Mitigation Measures

- Upon receiving a written request from the owner of:
  - Residence 34 – Stapleton;
  - Residence 13 – A Bowman; or
  - any other residence on privately-owned land where subsequent operational noise monitoring shows the noise generated by the Ravensworth mine complex exceeds the noise limits in Table 6,
 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.



If within 3 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 Director-General for resolution.

Table 6: Additional noise mitigation criteria dB(A)  $L_{Aeq}$  (15min)

| Receiver Location | Receiver                       | Day<br>( $L_{Aeq}$ (15min)) | Evening<br>( $L_{Aeq}$ (15min)) | Night<br>( $L_{Aeq}$ (15min)) |
|-------------------|--------------------------------|-----------------------------|---------------------------------|-------------------------------|
| 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                            |

Notes:

- 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.

7. 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 7, then upon receiving a written request from the owner, 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. The Proponent 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, the Proponent 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 Director-General for resolution.

Table 7: Cumulative noise mitigation criteria dB(A)  $L_{Aeq}$  (period)

| Location                       | Day | Evening | Night |
|--------------------------------|-----|---------|-------|
| R3 and R4 – Camberwell Village | 57  | 47      | 42    |
| All other privately-owned land | 52  | 47      | 42    |

Notes:

- To interpret the locations referred to Table 7, 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.

## Operating Conditions

8. The Proponent shall:
- 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 mine complex;
  - 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
  - co-ordinate 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 Director-General.

## Noise Management Plan

9. The Proponent shall prepare and implement a Noise Management Plan for the Ravensworth mine complex to the satisfaction of the Director-General. This plan must:
- be prepared in consultation with DECCW, and be submitted to the Director-General for approval by the end of June 2011;
  - 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 employs both reactive and proactive mitigation measures; and
  - include a noise monitoring program that:
    - uses a combination of real-time and supplementary attended monitoring measures to evaluate the performance of the Ravensworth mine 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.

## BLASTING

### Blasting Criteria

10. The Proponent shall ensure that blasts on site do not cause exceedances of the criteria in Table 8.

Table 8: Blasting criteria

| Location                                                             | Airblast overpressure (dB(Lin Peak)) | Ground vibration (mm/s) | Allowable exceedance                                        |
|----------------------------------------------------------------------|--------------------------------------|-------------------------|-------------------------------------------------------------|
| Residence <sup>a</sup> on privately owned land and Camberwell church | 120                                  | 10                      | 0%                                                          |
|                                                                      | 115                                  | 5                       | 5% of the total number of blasts over a period of 12 months |
| Ravensthorpe Public School and Chain of Ponds Hotel                  | 133                                  | 10                      | 0%                                                          |
| Ravensthorpe Homestead                                               | 126                                  | 10                      | 0%                                                          |
| Aboriginal axe grinding groove site (REA86)                          | -                                    | 30                      | 0%                                                          |
| 1,000ML dam wall and proposed dam wall                               | -                                    | <sup>b</sup> 25         | 0%                                                          |
| Conveyors, including the Hunter Valley Operations conveyor           | -                                    | <sup>b</sup> 100        | 0%                                                          |
| Main Northern Railway culverts and bridges                           | -                                    | <sup>b</sup> 25         | 0%                                                          |
| Transmission lines                                                   | -                                    | <sup>b</sup> 50         | 0%                                                          |
| Ashton underground mine                                              | -                                    | <sup>b</sup> 6          | 0%                                                          |

<sup>a</sup> Unless otherwise agreed with the relevant owner/s of the residence, and the Proponent has advised the Department in writing of the terms of this agreement.

<sup>b</sup> Unless otherwise agreed with the relevant infrastructure provider, owner or the regulator (in relation to the dams), and the Proponent has advised the Department in writing of the terms of this agreement.

### Blasting Hours

11. The Proponent shall only carry out blasting on site between 9am and 5pm Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the Director-General.

### Blasting Frequency

12. The Proponent may carry out a maximum of:
- (a) 2 blasts a day; and
  - (b) 10 blasts a week,
- averaged over a 12 month period, for all open cut operations at the Ravensthorpe mine complex.

This condition does not apply to blasts that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blasts required to ensure the safety of the mine or its workers.

*Note: For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.*

### Property Inspections

13. If the Proponent receives a written request for a property inspection from the owner of any privately-owned land within 3 kilometres of any approved blasting operations, the Proponent shall:
- (a) within 2 months of receiving this request commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to:
    - establish the baseline condition of any buildings and other structures on the land; and
    - identify measures that should be implemented to minimise the potential blasting impacts of the project on these buildings or structures; and

- (b) give the landowner a copy of the property inspection report.

### **Property Investigations**

14. If any landowner of privately-owned land within 3 kilometres of blasting operations, or any other landowner nominated by the Director-General, claims that buildings and/or structures on his/her land have been damaged as a result of blasting at the project, then within 2 months of receiving this request the Proponent shall:
- (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to investigate the claim; and
  - (b) give the landowner a copy of the property investigation report.

If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Proponent shall repair the damage to the satisfaction of the Director-General.

If the Proponent or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.

### **Operating Conditions**

15. The Proponent shall:
- (a) implement best blasting management practice to:
    - protect the safety of people and livestock in the surrounding area;
    - protect public or private infrastructure/property in the surrounding area; and
    - minimise the dust and fume emissions from blasting;
  - (b) co-ordinate the blasting on site with the blasting at nearby mines to minimise the cumulative blasting impacts of the mines; and
  - (c) operate a system to enable the public to get up-to-date information on the proposed blasting schedule on site,  
to the satisfaction of the Director-General.
16. The Proponent shall not undertake blasting within 500 metres of:
- (a) the realigned Lemington Road without the approval of Council; or
  - (b) any land outside the site not owned by the Proponent, unless the Proponent has a written agreement with the relevant landowner to allow blasting to be carried out closer to the land, and the Proponent has advised the Department in writing of the terms of this agreement.

### **Blast Management Plan**

17. The Proponent shall prepare and implement a Blast Management Plan for the project to the satisfaction of the Director-General. This plan must:
- (a) be prepared in consultation with DECCW, and be submitted to the Director-General for approval by the end of June 2011; and
  - (b) describe the blast mitigation measures that would be implemented to ensure compliance with the relevant conditions of this approval;
  - (c) describe the measures that would be implemented to ensure that the public can get up-to-date information on the blasting schedule;
  - (d) include a road closure management plan, prepared in consultation with Council;
  - (e) include a blast monitoring program for evaluating blast-related impacts (including blast-induced seismic activity) on, and demonstrating compliance with the blasting criteria in this approval for:
    - privately-owned residences and structures;
    - items of Aboriginal (including the REA86 axe grinding grooves) and non-indigenous cultural heritage significance;
    - private and publicly-owned infrastructure; and
    - the RUM and the Ashton underground mine; and
  - (f) include a protocol that has been prepared in consultation with the owners of nearby mines for minimising and managing cumulative blasting impacts of the mines.

### **AIR QUALITY AND GREENHOUSE GAS**

#### **Odour**

18. The Proponent shall ensure that no offensive odours are emitted from the site, as defined under the POEO Act, unless otherwise authorised by an EPL.

#### **Greenhouse Gas Emissions**

19. The Proponent shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site to the satisfaction of the Director-General.

*Note: This condition does not extend to Scope 3 emissions, as defined in the National Greenhouse Energy Reporting Guidelines.*

## Air Quality Criteria

20. Except for the air quality-affected land referred to in Table 1, the Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the Ravensworth mine complex do not exceed the criteria listed in Tables 9, 10 or 11 at any residence on privately-owned land or on more than 25 percent of any privately-owned land.

Table 9: Long term criteria for particulate matter

| <b>Pollutant</b>                               | <b>Averaging period</b> | <b><sup>d</sup> Criterion</b>     |
|------------------------------------------------|-------------------------|-----------------------------------|
| Total suspended particulate (TSP) matter       | Annual                  | <sup>a</sup> 90 µg/m <sup>3</sup> |
| Particulate matter < 10 µm (PM <sub>10</sub> ) | Annual                  | <sup>a</sup> 30 µg/m <sup>3</sup> |

Table 10: Short term criterion for particulate matter

| <b>Pollutant</b>                               | <b>Averaging period</b> | <b><sup>d</sup> Criterion</b>     |
|------------------------------------------------|-------------------------|-----------------------------------|
| Particulate matter < 10 µm (PM <sub>10</sub> ) | 24 hour                 | <sup>a</sup> 50 µg/m <sup>3</sup> |

Table 11: Long term criteria for deposited dust

| <b>Pollutant</b>            | <b>Averaging period</b> | <b>Maximum increase in deposited dust level</b> | <b>Maximum total deposited dust level</b> |
|-----------------------------|-------------------------|-------------------------------------------------|-------------------------------------------|
| <sup>c</sup> Deposited dust | Annual                  | <sup>b</sup> 2 g/m <sup>2</sup> /month          | <sup>a</sup> 4 g/m <sup>2</sup> /month    |

Notes to Tables 9-11:

<sup>a</sup> Total impact (ie. incremental increase in concentrations due to the Ravensworth mine complex plus background concentrations due to all other sources);

<sup>b</sup> Incremental impact (ie. incremental increase in concentrations due to the Ravensworth mine complex on its own);

<sup>c</sup> Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method;

<sup>d</sup> Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with DECCW.

## Air Quality Acquisition Criteria

21. If particulate matter emissions generated by the Ravensworth mine complex exceed the criteria in Tables 12, 13, and 14 at any residence on privately owned land, or on more than 25 percent 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.

Table 12: Long term acquisition criteria for particulate matter

| <b>Pollutant</b>                               | <b>Averaging period</b> | <b><sup>d</sup> Criterion</b>     |
|------------------------------------------------|-------------------------|-----------------------------------|
| Total suspended particulate (TSP) matter       | Annual                  | <sup>a</sup> 90 µg/m <sup>3</sup> |
| Particulate matter < 10 µm (PM <sub>10</sub> ) | Annual                  | <sup>a</sup> 30 µg/m <sup>3</sup> |

Table 13: Short term acquisition criteria for particulate matter

| <b>Pollutant</b>                               | <b>Averaging period</b> | <b><sup>d</sup> Criterion</b>      |
|------------------------------------------------|-------------------------|------------------------------------|
| Particulate matter < 10 µm (PM <sub>10</sub> ) | 24 hour                 | <sup>a</sup> 150 µg/m <sup>3</sup> |
| Particulate matter < 10 µm (PM <sub>10</sub> ) | 24 hour                 | <sup>b</sup> 50 µg/m <sup>3</sup>  |

Table 14: Long term acquisition criteria for deposited dust

| <b>Pollutant</b>            | <b>Averaging period</b> | <b>Maximum increase in deposited dust level</b> | <b>Maximum total deposited dust level</b> |
|-----------------------------|-------------------------|-------------------------------------------------|-------------------------------------------|
| <sup>c</sup> Deposited dust | Annual                  | <sup>b</sup> 2 g/m <sup>2</sup> /month          | <sup>a</sup> 4 g/m <sup>2</sup> /month    |

Notes to Tables 12-14:

<sup>a</sup> Total impact (ie. incremental increase in concentrations due to the Ravensworth mine complex plus background concentrations due to all other sources);

<sup>b</sup> Incremental impact (ie. incremental increase in concentrations due to the Ravensworth mine complex on its own);

<sup>c</sup> Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: *Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method*;

<sup>d</sup> Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with DECCW.

### Additional Air Quality Mitigation Measures

22. Upon receiving a written request from the owner of any residences:
- on the air quality-affected land listed in Table 1;
  - on the land listed in Table 15; or
  - on any other privately-owned land where subsequent air quality monitoring shows the dust generated by the Ravensworth mine complex exceeds the air quality limits in Tables 9, 10 or 11 on a systemic basis,
- the Proponent shall implement additional reasonable and feasible dust mitigation measures (such as a first-flush roof system, internal or external air filters and/or air conditioning) at the residence in consultation with the owner.

If within 3 months of receiving this request from the owner, the Proponent 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 Director-General for resolution.

Table 15: Land subject to additional air quality mitigation upon request

| Receiver No. | Receiver |
|--------------|----------|
| 6C           | Moxey    |
| 13           | A Bowman |

Notes:

- To interpret the locations referred to in Table 15, see the applicable figure in Appendix 5.
- For this condition to apply, the exceedance of the criteria must be systemic.

### Operating Conditions

23. The Proponent shall:
- implement best practice air quality management, including all reasonable and feasible measures to minimise off-site odour, fume and dust emissions generated by the Ravensworth mine complex, including those generated by any spontaneous combustion;
  - minimise any visible off-site air pollution generated by the Ravensworth mine complex;
  - regularly assess the real-time air quality monitoring and meteorological forecasting data and relocate, modify and/or suspend operations to ensure compliance with the relevant conditions of this approval; and
  - co-ordinate air quality management on site with the air quality management at nearby mines to minimise the cumulative air quality impacts of the mines, to the satisfaction of the Director-General.

### Air Quality and Greenhouse Gas Management Plan

24. The Proponent shall prepare and implement an Air Quality and Greenhouse Gas Management Plan for the Ravensworth mine complex to the satisfaction of the Director-General. This plan must:
- be prepared in consultation with DECCW, and be submitted to the Director-General for approval by the end of June 2011;
  - describe the measures that would be implemented to ensure compliance with the relevant conditions of this approval, including a real-time air quality management system that employs both reactive and proactive mitigation measures;
  - include an air quality monitoring program that:
    - uses a combination of real-time monitors, high volume samplers and dust deposition gauges to evaluate the performance of the Ravensworth mine complex; and
    - includes a protocol for determining exceedances of the relevant conditions of this approval; and
  - include a protocol that has been prepared in consultation with the owners of nearby mines to minimise the cumulative air quality impacts of the mines.

### METEOROLOGICAL MONITORING

25. During the life of the project, the Proponent shall ensure that there is a suitable meteorological station in the vicinity of the site that:
- complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline; and

- (b) is capable of continuous real-time measurement of temperature lapse rate in accordance with the *NSW Industrial Noise Policy*, or as otherwise approved by DECCW.

## SOIL AND WATER

### Water Supply

26. The Proponent shall ensure that it has sufficient water for all stages of the project, and if necessary, adjust the scale of mining operations to match its available water supply, to the satisfaction of the Director-General.

*Note: The Proponent is required to obtain all necessary water licences and approvals for the project under the Water Act 1912 and/or Water Management Act 2000.*

### Baseflow Offsets

27. The Proponent shall offset the loss of any baseflow to the surrounding watercourses and/or associated creeks caused by the project to the satisfaction of the Director-General.

#### Notes:

- *This condition does not apply in the case of losses of baseflow which are negligible.*
- *Offsets should be provided via the retirement of adequate water entitlements to account for the loss attributable to the project.*
- *The Proponent is not required to provide additional baseflow offsets where such offsets have already been provided under previous consents or approvals for the mine complex. These existing offsets are to be described and evaluated in the Surface and Ground Water Response Plan (see below).*

### Compensatory Water Supply

28. The Proponent shall provide compensatory water supply to any landowner of privately-owned land whose water entitlements are adversely and directly impacted (other than an impact that is negligible) as a result of the project, in consultation with NOW, and to the satisfaction of the Director-General.

The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent to the loss attributed to the project. Equivalent water supply should be provided (at least on an interim basis) within 24 hours of the loss being identified.

If 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 Director-General for resolution.

If the Proponent is unable to provide an alternative long-term supply of water, then the Proponent shall provide alternative compensation to the satisfaction of the Director-General.

### Surface Water Discharges

29. The Proponent shall ensure that all surface water discharges from the site comply with the:
- (a) discharge limits (both volume and quality) set for the project in any EPL; or
  - (b) relevant provisions of the POEO Act or *Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002*.

### Emu Creek and Bayswater Creek Diversions

30. The Proponent shall:
- (a) carry out the diversion of Emu Creek to the satisfaction of the Director-General;
  - (b) submit an as-executed report to the Director-General and NOW, certified by a practising engineer, confirming that the Emu Creek diversion is sufficiently hydraulically and geomorphologically stable, prior to commissioning the diversion;
  - (c) reinstate Emu Creek generally in accordance with the concept design outlined in the EA (as depicted in the figure in Appendix 7) and minimising net loss of stream length, as soon as practicable following mining and rehabilitation in the applicable area, to the satisfaction of the Director-General;
  - (d) rehabilitate and revegetate the Bayswater Creek diversion to provide a hydraulically and geomorphologically stable stream as soon as practicable following mining and rehabilitation in the applicable area, to the satisfaction of the Director-General; and
  - (e) submit as-executed reports to the Director-General and NOW, certified by a practising engineer, confirming that the reinstated/rehabilitated Emu Creek and Bayswater Creek are sufficiently hydraulically and geomorphologically stable, prior to commissioning the reinstated/rehabilitated creeks.

## Water Management Plan

31. The Proponent shall prepare and implement a Water Management Plan for the Ravensworth mine complex to the satisfaction of the Director-General. This plan must be prepared in consultation with DECCW, NOW and I&I NSW, and be submitted to the Director-General for approval by the end of June 2011. The plan must include:
- (a) a Site Water Balance, which must:
    - include details of:
      - sources and security of water supply;
      - water use on site;
      - water management on site;
      - any off-site water transfers; and
    - investigate and implement all reasonable and feasible measures to minimise water use by the Ravensworth mine complex;
  - (b) a Creek Diversion Management Plan, which must include:
    - a vision statement for the Emu Creek and Bayswater Creek diversions;
    - an assessment of the water quality, ecological, hydrological and geomorphic baseline conditions within each creek;
    - the detailed design specifications for the creek relocations/rehabilitation;
    - a construction program for the creek relocations/rehabilitation, describing how the work would be staged, and integrated with mining operations;
    - a revegetation program for the relocated/rehabilitated creeks using a range of suitable native species;
    - water quality, ecological, hydrological and geomorphic performance and completion criteria for the creek relocations/rehabilitation based on the assessment of baseline conditions; and
    - a program to monitor and maintain the water quality, ecological, hydrological and geomorphic integrity of the creek relocations/rehabilitation;
  - (c) an Erosion and Sediment Control Plan, which must:
    - identify activities that could cause soil erosion, generate sediment or affect flooding;
    - describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters, and manage flood risk;
    - describe the location, function, and capacity of erosion and sediment control structures and flood management structures; and
    - describe what measures would be implemented to maintain the structures over time;
  - (d) a Surface Water Management Plan, which must include:
    - detailed baseline data on surface water flows and quality in creeks and other waterbodies that could potentially be affected by the project;
    - surface water and stream health impact assessment criteria including trigger levels for investigating any potentially adverse surface water impacts;
    - a program to monitor and assess:
      - surface water flows and quality;
      - impacts on water users;
      - stream health; and
      - channel stability;
  - (e) a Groundwater Management Plan, which must include:
    - detailed baseline data of groundwater levels, yield and quality in the region, and privately-owned groundwater bores, that could be affected by the project;
    - groundwater impact assessment criteria including trigger levels for investigating any potentially adverse groundwater impacts;
    - a program to monitor and assess:
      - groundwater inflows to the mining operations;
      - impacts on regional aquifers;
      - impacts on the groundwater supply of potentially affected landowners;
      - impacts on the Hunter River, Bayswater Creek and Bowmans Creek alluvial aquifers; and
      - impacts on any groundwater dependent ecosystems and riparian vegetation;
  - (f) a Surface and Ground Water Response Plan, which must include:
    - a response protocol for any exceedances of the surface water and groundwater assessment criteria;
    - measures to offset the loss of any baseflow to watercourses caused by the project;
    - measures to prevent, minimise or offset groundwater leakage from alluvial aquifers caused by the project, particularly when mining within 150 metres of any such alluvials (see Appendix 6);
    - measures to compensate landowners of privately-owned land whose water supply is adversely affected by the project; and
    - measures to mitigate and/or offset any adverse impacts on groundwater dependent ecosystems or riparian vegetation.

## BIODIVERSITY

### Biodiversity Offsets

32. The Proponent shall implement the biodiversity offset strategy as outlined in Table 16 and as generally described in the EA (and shown conceptually in Appendix 7), to the satisfaction of the Director-General.

Table 16: Biodiversity Offset Strategy

| Area                           | Offset Type                                          | Minimum Size (hectares) |
|--------------------------------|------------------------------------------------------|-------------------------|
| Ravensthorpe North Offset Area | Existing vegetation and vegetation to be established | 284                     |
| Hillcrest Offset Area          | Existing vegetation and vegetation to be established | 1,402                   |
| Clifton Offset Area            | Existing vegetation and vegetation to be established | 107                     |
| Stewart Offset Area            | Existing vegetation and vegetation to be established | 165                     |
| Rehabilitation Area            | Woodland vegetation to be established                | 1,762                   |
| <b>Total</b>                   |                                                      | <b>3,720</b>            |

33. The Proponent shall ensure that the offset strategy and/or rehabilitation strategy is focused on the re-establishment of:
- significant and/or threatened plant communities, including:
    - Central Hunter Grey Box – Ironbark Woodland;
    - Central Hunter Ironbark – Spotted Gum – Grey Box Forest;
    - River-flat Eucalypt Forest;
    - Hunter Floodplain Red Gum Woodland Complex;
  - significant and/or threatened plant species, including:
    - Lobed Blue-grass (*Bothriochloa biloba*);
    - Weeping Myall (*Acacia pendula*);
    - River Red Gum (*Eucalyptus camaldulensis*); and
  - habitat for significant and/or threatened animal species, including:
    - Green and Golden Bell Frog (*Litoria aurea*).
34. By the end of December 2025, unless otherwise agreed by the Director-General, the Proponent shall undertake an independent audit of the Central Hunter Grey Box – Ironbark Woodland EEC revegetation in the rehabilitation area, to the satisfaction of the Director-General. The audit shall:
- be conducted by a suitably qualified, experienced and independent ecologist whose appointment has been endorsed by the Director-General;
  - include consultation with DECCW;
  - assess the performance of the Central Hunter Grey Box – Ironbark Woodland EEC revegetation in the rehabilitation area completed to date against the completion criteria in the Rehabilitation Management Plan;
  - identify any measures that should be implemented to improve the performance of the rehabilitation; and
  - if the completion criteria have not been met, or are not adequately trending towards being met, determine the likely ecological value of the rehabilitation once completed, and recommend additional measures to augment the offset strategy to ensure that it adequately offsets the project's impacts on the Central Hunter Grey Box – Ironbark Woodland EEC.

If the audit recommends additional measures to augment the offset strategy in accordance with (e) above, then within 6 months of the completion of the audit the Proponent shall revise the offset strategy, in consultation with DECCW, and to the satisfaction of the Director-General.

#### Notes:

- The audit should be combined with the independent environmental audit (see condition 8 of schedule 5).
- For the purposes of this condition Central Hunter Grey Box – Ironbark Woodland EEC refers to the community as defined under the Threatened Species Conservation Act 1995 as at the date of the approval.

### Long Term Security of Offsets

35. The Proponent shall make suitable arrangements to provide appropriate long term security for the:
- Ravensthorpe North Offset Area and Hillcrest Offset Area, by the end of December 2011;



- (b) Clifton Offset Area and Stewart Offset Area, by the end of December 2013; and
- (c) woodland vegetation to be established in the Rehabilitation Area, at least 2 years prior to the completion of mining activities associated with the project, to the satisfaction of the Director-General.

#### **Hunter Ironbark Research Program**

36. The Proponent shall prepare and implement a Hunter Ironbark Research Program for the project to the satisfaction of the Director-General. This program must:
  - (a) be prepared in consultation with DECCW, and be submitted to the Director-General for approval by the end of December 2011;
  - (b) be directed at encouraging research into the mapping and recovery of EECs affected by the project, particularly:
    - Central Hunter Grey Box – Ironbark Woodland EEC; and
    - Central Hunter Ironbark – Spotted Gum – Grey Box Forest EEC.
37. The Proponent shall allocate at least \$200,000 towards the preparation and implementation of the Hunter Ironbark Research Program identified above, and obtain the Director-General's approval for allocation of funding under the program.

#### **Biodiversity Management Plan**

38. The Proponent shall prepare and implement a Biodiversity Management Plan for the project to the satisfaction of the Director-General. This plan must:
  - (a) be prepared in consultation with DECCW, NOW and Council, and be submitted to the Director-General for approval by the end of December 2011;
  - (b) describe how the implementation of the offset strategy would be integrated with the overall rehabilitation of the site (see below);
  - (c) include:
    - a description of the short, medium, and long term measures that would be implemented to:
      - implement the offset strategy; and
      - manage the remnant vegetation and habitat on the site and in the offset areas;
    - detailed performance and completion criteria for implementation of the offset strategy;
    - a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:
      - implementing revegetation and regeneration within the disturbance areas and offset areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata;
      - maximising salvage and beneficial use of resources in areas that are to be impacted, including vegetative, soil and cultural heritage resources;
      - protecting vegetation and soil outside the disturbance areas;
      - rehabilitating creeks and drainage lines on the site (both inside and outside the disturbance areas), to minimise net loss of stream length and aquatic habitat;
      - managing salinity;
      - conserving and reusing topsoil;
      - undertaking pre-clearance surveys;
      - managing impacts on fauna;
      - landscaping the site and along public roads to minimise visual and lighting impacts, including along the New England Highway and the realigned Lemington Road;
      - collecting and propagating seed;
      - salvaging and reusing material from the site for habitat enhancement;
      - salvaging, transplanting and/or propagating threatened flora and native grassland;
      - controlling weeds and feral pests;
      - managing grazing and agriculture on site and in the offset areas;
      - controlling access; and
      - bushfire management;
    - a program to monitor the effectiveness of these measures, and progress against the performance and completion criteria;
    - a description of the potential risks to successful revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and
    - details of who would be responsible for monitoring, reviewing, and implementing the plan.

#### **Conservation Bond**

39. Within 6 months of the approval of the Biodiversity Management Plan (see above), the Proponent shall lodge a conservation bond with the Department to ensure that the offset strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan.

The sum of the bond shall be determined by:

- (a) calculating the full cost of implementing the offset strategy (other than land acquisition costs); and
- (b) employing a suitably qualified quantity surveyor to verify the calculated costs.

If the offset strategy is completed generally in accordance with the completion criteria in the Biodiversity Management Plan (see condition 38) to the satisfaction of the Director-General, the Director-General will release the bond.

If the offset strategy is not completed generally in accordance with the completion criteria in the Biodiversity Management Plan, the Director-General will call in all or part of the conservation bond, and arrange for the satisfactory completion of the relevant works.

With the agreement of the Director-General, this bond may be combined with the rehabilitation securities administered by the Minister for Mineral Resources.

## **REHABILITATION**

### **Rehabilitation Objectives**

40. The Proponent shall:
- (a) carry out rehabilitation progressively, that is, as soon as reasonably practicable following disturbance; and
  - (b) achieve the rehabilitation objectives in the EA (and response to submissions), to the satisfaction of the Director-General of I&I NSW.

### **Rehabilitation Management Plan**

41. The Proponent shall prepare and implement a Rehabilitation Management Plan for the project to the satisfaction of the Director-General of I&I NSW. This plan must:
- (a) be prepared in consultation with the Department, DECCW, NOW, Council and the CCC, and be submitted to the Director-General of I&I NSW for approval by the end of June 2011;
  - (b) be prepared in accordance with any relevant I&I NSW guideline, and be consistent with the rehabilitation objectives in the EA;
  - (c) build, to the maximum extent practicable, on the other management plans required under this approval; and
  - (d) address all aspects of rehabilitation and mine closure, including final land use assessment, rehabilitation objectives, domain objectives, completion criteria and rehabilitation monitoring, and include:
    - an evaluation of end land use options for final void/s; and
    - a life of mine tailings management strategy, including an environmental risk assessment demonstrating that the emplacements can be designed, managed and rehabilitated appropriately.

*Note: The plan should build on the concept strategy depicted in Appendix 7.*

## **HERITAGE**

### **Heritage Management Plan**

42. The Proponent shall prepare and implement a Heritage Management Plan for the project to the satisfaction of the Director-General. This plan must:
- (a) be prepared in consultation with DECCW, the Aboriginal community, the Heritage Branch, Council, local historical organisations and relevant landowners, and be submitted to the Director-General for approval by the end of June 2011;
  - (b) include the following for the management of Aboriginal heritage on site:
    - a plan/s of management for the Ravensworth North Offset Area, Hillcrest Offset Area, Clifton Offset Area, Stewart Offset Area, Farrells Creek 1 Aboriginal Artefact Management Area and RUM Dam Conservation Area (or agreed alternative to the RUM Dam Conservation Area); and
    - a program/procedures for:
      - salvage, excavation and/or management of Aboriginal sites and potential archaeological deposits within the project disturbance area;
      - protection and monitoring of Aboriginal sites outside the project disturbance area;
      - monitoring, notifying and managing the effects of blasting on potentially affected Aboriginal sites;
      - maintaining and managing access to Aboriginal sites by the Aboriginal community;
      - contributing to Aboriginal cultural heritage management (in accordance with the commitments in the EA);

- managing the discovery of any new Aboriginal objects or skeletal remains during the project; and
  - ongoing consultation and involvement of the Aboriginal communities in the conservation and management of Aboriginal cultural heritage on the site; and
- (c) include the following for the management of other historic heritage on site:
- measures to manage potential impacts on, and heritage values of, the Ravensworth homestead, Chain of Ponds Hotel and Ravensworth Public School; and
  - a program/procedures for:
    - photographic and archival recording of heritage items directly or indirectly affected by the project;
    - protection and monitoring of heritage items outside the project disturbance area;
    - monitoring, notifying and managing the effects of blasting on potentially affected heritage items; and
    - managing the discovery of any new heritage items or skeletal remains identified during the project.

## TRANSPORT

### Monitoring of Coal Transport

43. The Proponent shall:
- (a) keep accurate records of the:
    - amount of coal transported from the site (on a monthly basis);
    - date and time of each train movement generated by the Ravensworth mine complex; and
  - (b) make these records available on its website at the end of each calendar year.

### Road and Intersection Construction

44. The Proponent shall:
- (a) realign Lemington Road and its intersection with the mine access road to the satisfaction of Council, prior to mining within 200 metres of the existing road alignment;
  - (b) upgrade the realigned Lemington Road / New England Highway intersection to the satisfaction of the RTA, prior to commissioning the realigned Lemington Road;
  - (c) upgrade the RCT access road / Liddell Station Road intersection to the satisfaction of Council, prior to the commencement of construction associated with the RCT/RCHPP; and
  - (d) construct the conveyor bridge over the New England Highway to the satisfaction of the RTA.

*Note: The Lemington Road realignment works include the closure of the existing alignment to public traffic.*

### Lemington Road Realignment

45. The Proponent shall construct the Lemington Road realignment in a manner that can reasonably withstand the subsidence impacts resulting from the Ashton underground coal mine (for mining operations approved under DA309-11-2001, as modified up to and including any approval to DA309-11-2001 Mod 6), to the satisfaction of the MSB.
46. Unless the Proponent and the owner of the Ashton underground mine agree otherwise, the Proponent shall pay Ashton's reasonable costs associated with the monitoring and management of subsidence-related impacts on the realigned Lemington Road resulting from the Ashton underground coal mine (for mining operations approved as above), to the satisfaction of the Director-General.

If there are any disputes in relation to the implementation of this condition, then any party may refer the matter to the Director-General for resolution.

### Lemington Road Realignment Review

47. The Proponent shall, together with the owner of the Ashton underground coal mine, commission and implement a detailed report on a final alignment for Lemington Road, to the satisfaction of the Director-General. The report shall be prepared by an independent person/s whose appointment has been approved by the Director-General, and must:
- (a) be commissioned by 30 June 2011 and be finalised by 31 March 2012;
  - (b) be prepared in consultation with Council, the RTA, MSB and Macquarie Generation;
  - (c) consider predicted subsidence impacts associated with the proposed extraction by the Ashton underground coal mine (for mining operations approved under DA309-11-2001, as modified up to and including DA309-11-2001 Mod 6) of each seam that it is permitted to extract within the underground mining area (including as to whether a stacked or offset panel alignment is employed), and proposed management of these subsidence impacts (including the safety of the public and other road users);
  - (d) assess any need for the final realignment to vary from the interim realignment, including consideration of the most appropriate status for the final alignment (ie. public or private road) and most appropriate timing of construction;
  - (e) identify a preferred option for the final alignment of Lemington Road;

- (f) assess the environmental, social and economic impacts associated with the realignment options, particularly the preferred option;
- (g) determine the most appropriate responsibility for funding ongoing maintenance of the realigned roadway, including costs associated with repair of any future subsidence-related impacts on the roadway; and
- (h) include an action plan for implementation of its recommendations, including any variation to the interim alignment and the funding of monitoring and management costs.

If so directed by the Director-General, the Proponent shall, together with the owner of the Ashton underground coal mine, commission and implement additional reports following extraction of each seam that the owner of the Ashton underground coal mine is permitted to extract (for mining operations approved under DA309-11-2001, as modified up to and including DA309-11-2001 Mod 6). Each such additional report shall review the impacts of previous subsidence on Lemington Road/Brunkers Lane, review existing measures to monitor and manage subsidence impacts, and recommend appropriate monitoring and management measures to address future subsidence impacts (including any continuing need to realign Lemington Road), to the satisfaction of the Director-General.

The Proponent shall fund 50% of the costs of reports prepared under this condition and shall implement the recommendations of such reports, to the satisfaction of the Director-General.

Any dispute over the interpretation or implementation of reports prepared under this condition shall be determined by the Director-General, whose decision shall be final.

*Notes: 1) The owner of the Ashton underground coal mine will be expected to fund the other 50 percent of report costs and to have similar responsibilities regarding implementation.  
2) Stacked or offset panel alignments for the Upper Liddell, Upper Lower Liddell and Lower Barrett seams are shown in the plans to DA309-11-2001.*

## **Railway Upgrades**

- 48. The Proponent shall de-link the Ravensworth Loop from the Newdell Loop, prior to transporting more than 8 million tonnes of product coal from the RCHPP/RCT in a calendar year.

## **VISUAL**

### **Visual Amenity and Lighting**

- 49. The Proponent shall:
  - (a) implement all reasonable and feasible measures to mitigate visual and off-site lighting impacts of the project;
  - (b) ensure no unshielded outdoor lights shine above the horizontal; and
  - (c) ensure that all external lighting associated with the project complies with *Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting*, to the satisfaction of the Director-General.

### **Additional Visual Mitigation Measures**

- 50. Upon receiving a written request from the owner of any residence on privately-owned land which has significant direct views of the mining operations on site, the Proponent shall implement additional visual mitigation measures (such as landscaping treatments or vegetation screens) on the land in consultation with the landowner. These measures must be reasonable and feasible, and directed towards minimising the visibility of the mining operations from the residence.

If within 3 months of receiving this request from the owner, the Proponent 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 Director-General for resolution.

*Note: Except in exceptional circumstances, the Director-General will not require additional visual impact mitigation to be undertaken for residences that are more than 5 kilometres from the mining operations.*

## **WASTE**

- 51. The Proponent shall:
  - (a) minimise and monitor the waste generated by the project;
  - (b) ensure that the waste generated by the project is appropriately stored, handled and disposed of;
  - (c) manage on-site sewage treatment and disposal in accordance with the requirements of Council; and
  - (d) report on waste management and minimisation in the Annual Review, to the satisfaction of the Director-General.

## **BUSHFIRE MANAGEMENT**

52. The Proponent shall:
- (a) ensure that the Ravensworth mine complex is suitably equipped to respond to fires on site; and
  - (b) assist the Rural Fire Service and emergency services as much as possible if there is a fire in the vicinity of the site.
-

## SCHEDULE 4 ADDITIONAL PROCEDURES

### NOTIFICATION OF LANDOWNERS

1. By the end of March 2011, the Proponent shall:
  - (a) notify in writing the owners of:
    - the land listed in Table 1 of schedule 3 that they have the right to require the Proponent to acquire their land at any stage during the project;
    - any residence on the land listed in Table 1 (noise-affected) or condition 6 of schedule 3 that they are entitled to ask for additional noise mitigation to be installed at their residence at any stage during the project;
    - any residence on the land listed in Table 1 (air quality-affected) or Table 15 of schedule 3 that they are entitled to ask for additional air quality mitigation measures to be installed at their residence at any stage during the project; and
    - any privately-owned land within 3 kilometres of any approved open cut mining pit on site that they are entitled to ask for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous property inspection report updated; and
  - (b) send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the owners and/or existing tenants of any land (including mine-owned land) where the predictions in the EA identify that the dust emissions generated by the project are likely to be greater than the relevant air quality criteria in schedule 3 at some stage during the project.
2. Within 2 weeks of obtaining monitoring results showing:
  - (a) an exceedance of the relevant criteria in schedule 3, the Proponent shall notify the affected landowner and/or tenants in writing of the exceedance, and provide regular monitoring results to each of these parties until the project is complying with the relevant criteria again;
  - (b) an exceedance of the relevant criteria in conditions 6(c) or 7 of schedule 3, the Proponent shall notify the applicable owner in writing that they are entitled to ask for additional noise mitigation to be installed at their residence;
  - (c) an exceedance of the relevant criteria in conditions 20 or 21 of schedule 3, the Proponent shall send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land); and
  - (d) an exceedance of the relevant criteria in condition 22(c) of schedule 3, the Proponent shall notify the applicable owner of any residences on the land that they are entitled to ask for additional air quality mitigation measures to be installed at their residence.

### INDEPENDENT REVIEW

3. If an owner of privately-owned land considers the project to be exceeding the relevant criteria in schedule 3, then he/she may ask the Director-General in writing for an independent review of the impacts of the project on his/her land.

If the Director-General is satisfied that an independent review is warranted, then within 2 months of the Director-General's decision the Proponent shall:

- (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to:
    - consult with the landowner to determine his/her concerns;
    - conduct monitoring to determine whether the project is complying with the relevant criteria in schedule 3; and
    - if the project is not complying with these criteria then:
      - determine if more than one mine is responsible for the exceedance, and if so the relative share of each mine regarding the impact on the land;
      - identify the measures that could be implemented to ensure compliance with the relevant criteria; and
  - (b) give the Director-General and landowner a copy of the independent review.
4. If the independent review determines that the project is complying with the relevant criteria in schedule 3, then the Proponent may discontinue the independent review with the approval of the Director-General.

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 the Proponent shall:

- (a) 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
- (b) secure a written agreement with the landowner to allow exceedances of the relevant criteria,

to the satisfaction of the Director-General.

If the independent review and further monitoring determines that the project is not complying with the relevant acquisition criteria in schedule 3, and that the project is primarily responsible for this non-compliance, then upon receiving a written request from the landowner, the Proponent shall acquire all or part of the landowner's land in accordance with the procedures in conditions 6-7 below.

5. 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 Proponent shall:
- (a) 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
  - (b) secure a written agreement with the landowner and other relevant mines to allow exceedances of the relevant criteria,
- to the satisfaction of the Director-General.

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, the Proponent 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 6-7 below.

## LAND ACQUISITION

6. Within 3 months of receiving a written request from a landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on:
- (a) 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;
  - (b) the reasonable costs associated with:
    - relocating within the Singleton or Muswellbrook local government areas, or to any other local government area determined by the Director-General; 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
  - (c) reasonable compensation for any disturbance caused by the land acquisition process.

However, if at the end of this period, the Proponent and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution.

Upon receiving such a request, the Director-General will request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:

- consider submissions from both parties;
- determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above;
- prepare a detailed report setting out the reasons for any determination; and
- provide a copy of the report to both parties.

Within 14 days of receiving the independent valuer's report, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.

However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Director-General for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Director-General will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report, the detailed report disputing the independent valuer's determination, and any other relevant submissions.

Within 14 days of this determination, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the Director-General's determination.

If the landowner refuses to accept the Proponent's binding written offer under this condition within 6 months of the offer being made, then the Proponent's obligations to acquire the land shall cease, unless the Director-General determines otherwise.

7. The Proponent shall pay all reasonable costs associated with the land acquisition process described in condition 6 above, 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.
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## SCHEDULE 5 ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

### ENVIRONMENTAL MANAGEMENT

#### Environmental Management Strategy

1. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. The strategy must:
  - (a) be submitted to the Director-General for approval by the end of June 2011;
  - (b) provide the strategic framework for environmental management of the project;
  - (c) identify the statutory approvals that apply to the project;
  - (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
  - (e) describe the procedures that would be implemented to:
    - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
    - receive, handle, respond to, and record complaints;
    - resolve any disputes that may arise during the course of the project;
    - respond to any non-compliance;
    - respond to emergencies; and
  - (f) include:
    - copies of any strategies, plans and programs approved under the conditions of this approval; and
    - a clear plan depicting all the monitoring to be carried out in relation to the project.

#### 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:
  - (a) detailed baseline data;
  - (b) a description of:
    - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
    - any relevant limits or performance measures/criteria;
    - 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;
  - (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
  - (d) a program to monitor and report on the:
    - 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;
  - (f) a program to investigate and implement ways to improve the environmental performance of the project over time;
  - (g) a protocol for managing and reporting any:
    - 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
  - (h) a protocol for periodic review of the plan.

*Note: The Director-General may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*

#### Annual Review

3. By the end of March 2012, and annually thereafter, the Proponent shall review the environmental performance of the project to the satisfaction of the Director-General. This review must:
  - (a) describe the works (including any rehabilitation) that were carried out in the past year, and the works that are proposed to be carried out over the next year;
  - (b) include a comprehensive review of the monitoring results and complaints records of the project over the past 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;
  - (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
  - (d) identify any trends in the monitoring data over the life of the project;

- (e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and
- (f) describe what measures will be implemented over the next year to improve the environmental performance of the project.

#### **Revision of Strategies, Plans and Programs**

4. Within 3 months of:
  - (a) the submission of an annual review under condition 3 above;
  - (b) the submission of an incident report under condition 6 below;
  - (c) the submission of an audit under condition 8 below; and
  - (d) any modification to the conditions of this approval,
 the Proponent shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Director-General.

*Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.*

#### **Community Consultative Committee**

5. The Proponent shall establish and operate a Community Consultative Committee (CCC) for the project to the satisfaction of the Director-General. This CCC must be established by the end of June 2011 and be operated in general accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects* (Department of Planning, 2007, or its latest version).

##### *Notes:*

- *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Proponent complies with this approval.*
- *In accordance with the guideline, the Committee should comprise an independent chair and appropriate representation from the Proponent, Council, recognised environmental groups and the local community.*
- *In establishing the CCC, the Department will accept the continued representation from existing CCC members.*
- *The CCC may be combined with any similar CCC for the RUM.*

#### **REPORTING**

##### **Incident Reporting**

6. The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of becoming aware of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.

##### **Regular Reporting**

7. The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any approved plans of the conditions of this approval.

#### **INDEPENDENT ENVIRONMENTAL AUDIT**

8. By the end of June 2012, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
  - (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;
  - (b) include consultation with the relevant agencies;
  - (c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);
  - (d) review the adequacy of any approved strategies, plans or programs required under these approvals; and, if appropriate
  - (e) recommend measures or actions to improve the environmental performance of the project, and/or any strategy, plan or program required under these approvals.

##### *Notes:*

- *This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Director-General.*
- *The audits should be coordinated with similar auditing requirements for the RUM.*

9. Within 6 weeks of the completion of this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, together with its response to any recommendations contained in the audit report.

## ACCESS TO INFORMATION

10. From the end of June 2011, the Proponent shall:
- (a) make copies of the following publicly available on its website:
    - the EA;
    - all current statutory approvals for the project;
    - approved strategies, plans and programs required under the conditions of this approval;
    - a summary of the monitoring results of the project, which have been reported in accordance with the various plans and programs approved under the conditions of this approval;
    - a complaints register, which is to be updated on a monthly basis;
    - minutes of CCC meetings;
    - the annual reviews (over the last 5 years);
    - any independent environmental audit, and the Proponent's response to the recommendations in any audit;
    - any other matter required by the Director-General; and
  - (b) keep this information up to date,  
to the satisfaction of the Director-General.
-

**APPENDIX 1  
SCHEDULE OF LAND**

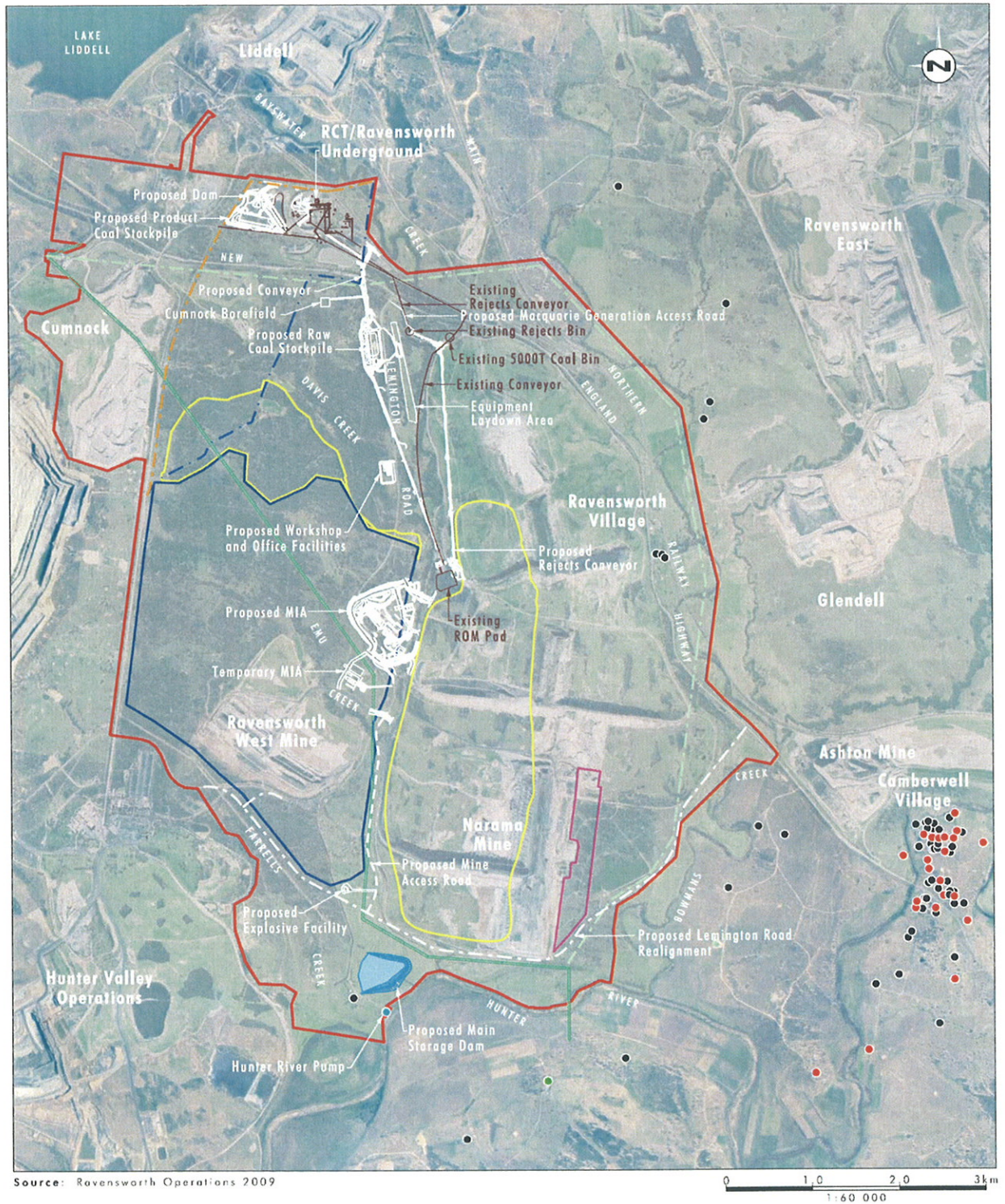
| Lot | DP      | County | Parish      | Lot | DP      | County | Parish      |
|-----|---------|--------|-------------|-----|---------|--------|-------------|
| 1   | 124977  | DURHAM | VANE        | 3   | 232149  | DURHAM | LIDDELL     |
| 1   | 125406  | DURHAM | LIDDELL     | 3   | 561235  | DURHAM | VANE        |
| 1   | 137381  | DURHAM | VANE        | 3   | 662944  | DURHAM | VANE        |
| 1   | 137382  | DURHAM | VANE        | 3   | 747902  | DURHAM | RAVENSWORTH |
| 1   | 151176  | DURHAM | VANE        | 3   | 774682  | DURHAM | RAVENSWORTH |
| 1   | 159786  | DURHAM | VANE        | 3   | 784446  | DURHAM | RAVENSWORTH |
| 1   | 213065  | DURHAM | LIDDELL     | 3   | 859924  | DURHAM | RAVENSWORTH |
| 1   | 393657  | DURHAM | SAVOY       | 3   | 1114623 | DURHAM | VANE        |
| 1   | 393657  | DURHAM | HOWICK      | 4   | 38725   | DURHAM | VANE        |
| 1   | 403032  | DURHAM | LIDDELL     | 4   | 48555   | DURHAM | RAVENSWORTH |
| 1   | 534889  | DURHAM | LIDDELL     | 4   | 125406  | DURHAM | LIDDELL     |
| 1   | 561235  | DURHAM | VANE        | 4   | 252530  | DURHAM | HOWICK      |
| 1   | 645240  | DURHAM | LIDDELL     | 4   | 747099  | DURHAM | RAVENSWORTH |
| 1   | 658099  | DURHAM | LIDDELL     | 4   | 774682  | DURHAM | VANE        |
| 1   | 738417  | DURHAM | LIDDELL     | 4   | 776382  | DURHAM | LIDDELL     |
| 1   | 747099  | DURHAM | RAVENSWORTH | 4   | 808670  | DURHAM | LIDDELL     |
| 1   | 747902  | DURHAM | RAVENSWORTH | 5   | 38725   | DURHAM | VANE        |
| 1   | 774682  | DURHAM | VANE        | 5   | 48555   | DURHAM | HOWICK      |
| 1   | 776382  | DURHAM | LIDDELL     | 5   | 125406  | DURHAM | LIDDELL     |
| 1   | 780177  | DURHAM | SAVOY       | 5   | 252530  | DURHAM | RAVENSWORTH |
| 1   | 784446  | DURHAM | RAVENSWORTH | 5   | 747099  | DURHAM | RAVENSWORTH |
| 1   | 793886  | DURHAM | VANE        | 5   | 808670  | DURHAM | LIDDELL     |
| 1   | 804150  | DURHAM | VANE        | 5   | 1077004 | DURHAM | VANE        |
| 1   | 808431  | DURHAM | LIDDELL     | 6   | 38725   | DURHAM | VANE        |
| 1   | 823148  | DURHAM | VANE        | 6   | 125406  | DURHAM | LIDDELL     |
| 1   | 859924  | DURHAM | RAVENSWORTH | 6   | 808670  | DURHAM | LIDDELL     |
| 1   | 940619  | DURHAM | VANE        | 6   | 1077004 | DURHAM | VANE        |
| 1   | 986496  | DURHAM | LIDDELL     | 7   | 38725   | DURHAM | VANE        |
| 1   | 1089848 | DURHAM | RAVENSWORTH | 7   | 48555   | DURHAM | RAVENSWORTH |
| 1   | 1095202 | DURHAM | LIDDELL     | 7   | 125406  | DURHAM | LIDDELL     |
| 2   | 6842    | DURHAM | VANE        | 7   | 808670  | DURHAM | LIDDELL     |
| 2   | 38725   | DURHAM | VANE        | 7   | 859924  | DURHAM | RAVENSWORTH |
| 2   | 137382  | DURHAM | VANE        | 7   | 1077004 | DURHAM | LIDDELL     |
| 2   | 232149  | DURHAM | LIDDELL     | 8   | 38725   | DURHAM | VANE        |
| 2   | 233019  | DURHAM | LIDDELL     | 8   | 125406  | DURHAM | LIDDELL     |
| 2   | 256503  | DURHAM | RAVENSWORTH | 8   | 808670  | DURHAM | LIDDELL     |
| 2   | 534889  | DURHAM | LIDDELL     | 8   | 845360  | DURHAM | RAVENSWORTH |
| 2   | 574166  | DURHAM | LIDDELL     | 8   | 1077004 | DURHAM | VANE        |
| 2   | 628645  | DURHAM | LIDDELL     | 9   | 38725   | DURHAM | VANE        |
| 2   | 738417  | DURHAM | LIDDELL     | 9   | 125406  | DURHAM | LIDDELL     |
| 2   | 774682  | DURHAM | RAVENSWORTH | 9   | 1077004 | DURHAM | VANE        |
| 2   | 784446  | DURHAM | RAVENSWORTH | 10  | 38725   | DURHAM | VANE        |
| 2   | 804150  | DURHAM | VANE        | 10  | 125406  | DURHAM | LIDDELL     |
| 2   | 808431  | DURHAM | LIDDELL     | 10  | 1077004 | DURHAM | VANE        |
| 2   | 986496  | DURHAM | LIDDELL     | 11  | 38725   | DURHAM | VANE        |
| 2   | 1089848 | DURHAM | VANE        | 11  | 125406  | DURHAM | LIDDELL     |
| 3   | 38725   | DURHAM | VANE        | 11  | 247943  | DURHAM | SAVOY       |
| 3   | 125406  | DURHAM | LIDDELL     | 11  | 261916  | DURHAM | VANE        |
| 3   | 137382  | DURHAM | VANE        | 11  | 592404  | DURHAM | LIDDELL     |
| 3   | 213065  | DURHAM | LIDDELL     | 11  | 825904  | DURHAM | VANE        |
| 11  | 858172  | DURHAM | LIDDELL     | 131 | 2328    | DURHAM | RAVENSWORTH |
| 12  | 38725   | DURHAM | VANE        | 132 | 2328    | DURHAM | RAVENSWORTH |

| Lot | DP      | County | Parish      | Lot  | DP      | County | Parish      |
|-----|---------|--------|-------------|------|---------|--------|-------------|
| 12  | 700554  | DURHAM | HOWICK      | 137  | 2328    | DURHAM | VANE        |
| 12  | 825904  | DURHAM | VANE        | 138  | 2328    | DURHAM | VANE        |
| 13  | 38725   | DURHAM | VANE        | 139  | 2328    | DURHAM | VANE        |
| 13  | 247945  | DURHAM | LIDDELL     | 140  | 2328    | DURHAM | VANE        |
| 13  | 825904  | DURHAM | VANE        | 141  | 2328    | DURHAM | VANE        |
| 14  | 38725   | DURHAM | VANE        | 142  | 2328    | DURHAM | VANE        |
| 14  | 247945  | DURHAM | LIDDELL     | 143  | 2328    | DURHAM | VANE        |
| 14  | 261916  | DURHAM | VANE        | 144  | 2328    | DURHAM | VANE        |
| 14  | 825904  | DURHAM | VANE        | 145  | 2328    | DURHAM | RAVENSWORTH |
| 15  | 38725   | DURHAM | VANE        | 146  | 2328    | DURHAM | RAVENSWORTH |
| 15  | 247941  | DURHAM | LIDDELL     | 147  | 2328    | DURHAM | RAVENSWORTH |
| 15  | 247945  | DURHAM | LIDDELL     | 150  | 752470  | DURHAM | LIDDELL     |
| 15  | 825904  | DURHAM | VANE        | 153  | 2328    | DURHAM | RAVENSWORTH |
| 15  | 848095  | DURHAM | LIDDELL     | 154  | 2328    | DURHAM | RAVENSWORTH |
| 16  | 38725   | DURHAM | VANE        | 155  | 2328    | DURHAM | RAVENSWORTH |
| 16  | 247941  | DURHAM | LIDDELL     | 156  | 2328    | DURHAM | RAVENSWORTH |
| 16  | 247945  | DURHAM | LIDDELL     | 157  | 2328    | DURHAM | RAVENSWORTH |
| 16  | 848095  | DURHAM | LIDDELL     | 158  | 2328    | DURHAM | RAVENSWORTH |
| 19  | 38725   | DURHAM | VANE        | 159  | 2328    | DURHAM | RAVENSWORTH |
| 20  | 38725   | DURHAM | VANE        | 160  | 2328    | DURHAM | VANE        |
| 20  | 841165  | DURHAM | LIDDELL     | 161  | 2328    | DURHAM | VANE        |
| 21  | 38725   | DURHAM | VANE        | 162  | 2328    | DURHAM | VANE        |
| 21  | 786904  | DURHAM | RAVENSWORTH | 163  | 2328    | DURHAM | VANE        |
| 21  | 817272  | DURHAM | LIDDELL     | 164  | 2328    | DURHAM | VANE        |
| 21  | 841165  | DURHAM | LIDDELL     | 165  | 2328    | DURHAM | VANE        |
| 21  | 869399  | DURHAM | LIDDELL     | 166  | 2328    | DURHAM | VANE        |
| 21  | 878457  | DURHAM | RAVENSWORTH | 167  | 2328    | DURHAM | VANE        |
| 22  | 841165  | DURHAM | LIDDELL     | 180  | 858299  | DURHAM | LIDDELL     |
| 22  | 869399  | DURHAM | LIDDELL     | 181  | 1126510 | DURHAM | LIDDELL     |
| 22  | 878457  | DURHAM | RAVENSWORTH | 182  | 975271  | DURHAM | LIDDELL     |
| 23  | 841165  | DURHAM | LIDDELL     | 183  | 975271  | DURHAM | LIDDELL     |
| 24  | 841165  | DURHAM | LIDDELL     | 184  | 975271  | DURHAM | LIDDELL     |
| 31  | 585169  | DURHAM | VANE        | 200  | 975271  | DURHAM | LIDDELL     |
| 32  | 545601  | DURHAM | LIDDELL     | 201  | 975271  | DURHAM | LIDDELL     |
| 32  | 585169  | DURHAM | VANE        | 202  | 975271  | DURHAM | LIDDELL     |
| 38  | 752481  | DURHAM | RAVENSWORTH | 300  | 856881  | DURHAM | RAVENSWORTH |
| 50  | 1048492 | DURHAM | RAVENSWORTH | 304  | 868175  | DURHAM | RAVENSWORTH |
| 51  | 1048492 | DURHAM | RAVENSWORTH | 310  | 848411  | DURHAM | LIDDELL     |
| 58  | 752481  | DURHAM | RAVENSWORTH | 321  | 860535  | DURHAM | RAVENSWORTH |
| 89  | 752470  | DURHAM | LIDDELL     | 502  | 864519  | DURHAM | LIDDELL     |
| 100 | 700429  | DURHAM | LIDDELL     | 601  | 1019325 | DURHAM | SAVOY       |
| 100 | 858173  | DURHAM | LIDDELL     | 602  | 1019325 | DURHAM | LIDDELL     |
| 100 | 868268  | DURHAM | LIDDELL     | 1210 | 878458  | DURHAM | RAVENSWORTH |
| 100 | 1037665 | DURHAM | RAVENSWORTH | 1211 | 878458  | DURHAM | VANE        |
| 101 | 700429  | DURHAM | LIDDELL     | 1241 | 1007536 | DURHAM | RAVENSWORTH |
| 101 | 825292  | DURHAM | LIDDELL     | 1242 | 1007536 | DURHAM | RAVENSWORTH |
| 101 | 1037665 | DURHAM | RAVENSWORTH | 1481 | 1129164 | DURHAM | LIDDELL     |
| 122 | 872131  | DURHAM | VANE        | 3000 | 1132357 | DURHAM | RAVENSWORTH |
| 129 | 2328    | DURHAM | RAVENSWORTH | 3001 | 1132357 | DURHAM | RAVENSWORTH |
| 130 | 2328    | DURHAM | RAVENSWORTH | 7001 | 93617   | DURHAM | LIDDELL     |
| 133 | 2328    | DURHAM | VANE        | 2A   | 6842    | DURHAM | VANE        |
| 134 | 2328    | DURHAM | VANE        | A    | 158063  | DURHAM | VANE        |
| 135 | 2328    | DURHAM | VANE        | 2    | 534889  | DURHAM | LIDDELL     |
| 136 | 2328    | DURHAM | VANE        | 4    | 232149  | DURHAM | LIDDELL     |

| Lot                          | DP      | County | Parish           | Lot | DP      | County | Parish    |
|------------------------------|---------|--------|------------------|-----|---------|--------|-----------|
| 3                            | 232149  | DURHAM | LIDDELL          | 5   | 1077004 | DURHAM | VANE      |
| 32                           | 545601  | DURHAM | LIDDELL          | 1   | 780177  | DURHAM | SAVOY     |
| 2                            | 1089438 | DURHAM | LIDDELL          | 6   | 125406  | DURHAM | LIDDELL   |
| 12                           | 592404  | DURHAM | LIDDELL          | 7   | 125406  | DURHAM | LIDDELL   |
| 2A                           | 6842    | DURHAM | VANE             | 8   | 125406  | DURHAM | LIDDELL   |
| 2                            | 6842    | DURHAM | VANE             |     |         |        |           |
| <b>Hillcrest Offset Area</b> |         |        |                  |     |         |        |           |
| 13                           | 752486  | DURHAM | SAVOY            | 175 | 752465  | DURHAM | HERSCHELL |
| 3                            | 532671  | DURHAM | LIDDELL          | 147 | 752486  | DURHAM | SAVOY     |
| 321                          | 861090  | DURHAM | SAVOY            | 176 | 752465  | DURHAM | HERSCHELL |
| 7                            | 6841    | DURHAM | SAVOY            | 159 | 752470  | DURHAM | LIDDELL   |
| 8                            | 6841    | DURHAM | SAVOY            | 1   | 567124  | DURHAM | LIDDELL   |
| 10                           | 6841    | DURHAM | LIDDELL          | 139 | 752470  | DURHAM | LIDDELL   |
| 3                            | 233020  | DURHAM | LIDDELL          | 170 | 752486  | DURHAM | SAVOY     |
| 138                          | 752470  | DURHAM | LIDDELL          | 311 | 549456  | DURHAM | LIDDELL   |
| 132                          | 752470  | DURHAM | LIDDELL          |     |         |        |           |
| <b>Stewart Offset Area</b>   |         |        |                  |     |         |        |           |
| 61                           | 1058720 | DURHAM | BALMORAL / SAVOY |     |         |        |           |
| <b>Clifton Offset Area</b>   |         |        |                  |     |         |        |           |
| 50                           | 1124127 | DURHAM | SAVOY            | 53  | 1124127 | DURHAM | SAVOY     |



## APPENDIX 2 PROJECT LAYOUT PLANS



### Legend

- |                                                                                                                               |                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <span style="border: 2px solid red; padding: 2px;"> </span> Project Area                                                      | <span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> Existing Infrastructure                                     |
| <span style="border: 2px solid blue; padding: 2px;"> </span> Ravensworth North Pit                                            | <span style="border-bottom: 1px solid green; width: 20px; display: inline-block;"></span> Proposed Infrastructure                                     |
| <span style="border: 2px solid yellow; padding: 2px;"> </span> Out of Pit Overburden Emplacement                              | <span style="border-bottom: 1px dashed blue; width: 20px; display: inline-block;"></span> Existing EnergyAustralia 66kV Powerline                     |
| <span style="border: 2px solid purple; padding: 2px;"> </span> Narama Extension                                               | <span style="border-bottom: 1px dashed orange; width: 20px; display: inline-block;"></span> Proposed EnergyAustralia 66kV Powerline                   |
| <span style="border-bottom: 1px solid green; width: 20px; display: inline-block;"></span> Existing 330kV Transmission Line    | <span style="display: inline-block; width: 10px; height: 10px; background-color: black; border-radius: 50%;"></span> Mine Owned Residence             |
| <span style="border-bottom: 1px dashed green; width: 20px; display: inline-block;"></span> Proposed 330kV Transmission Line   | <span style="display: inline-block; width: 10px; height: 10px; background-color: red; border-radius: 50%;"></span> Private Residence                  |
| <span style="border-bottom: 1px solid green; width: 20px; display: inline-block;"></span> Proposed Lemington Road Realignment | <span style="display: inline-block; width: 10px; height: 10px; background-color: green; border-radius: 50%;"></span> Private Residence with Agreement |
| <span style="border-bottom: 1px solid green; width: 20px; display: inline-block;"></span> Proposed Mine Access Road           |                                                                                                                                                       |

FIGURE 3.4

Revised Ravensworth  
Operations Project



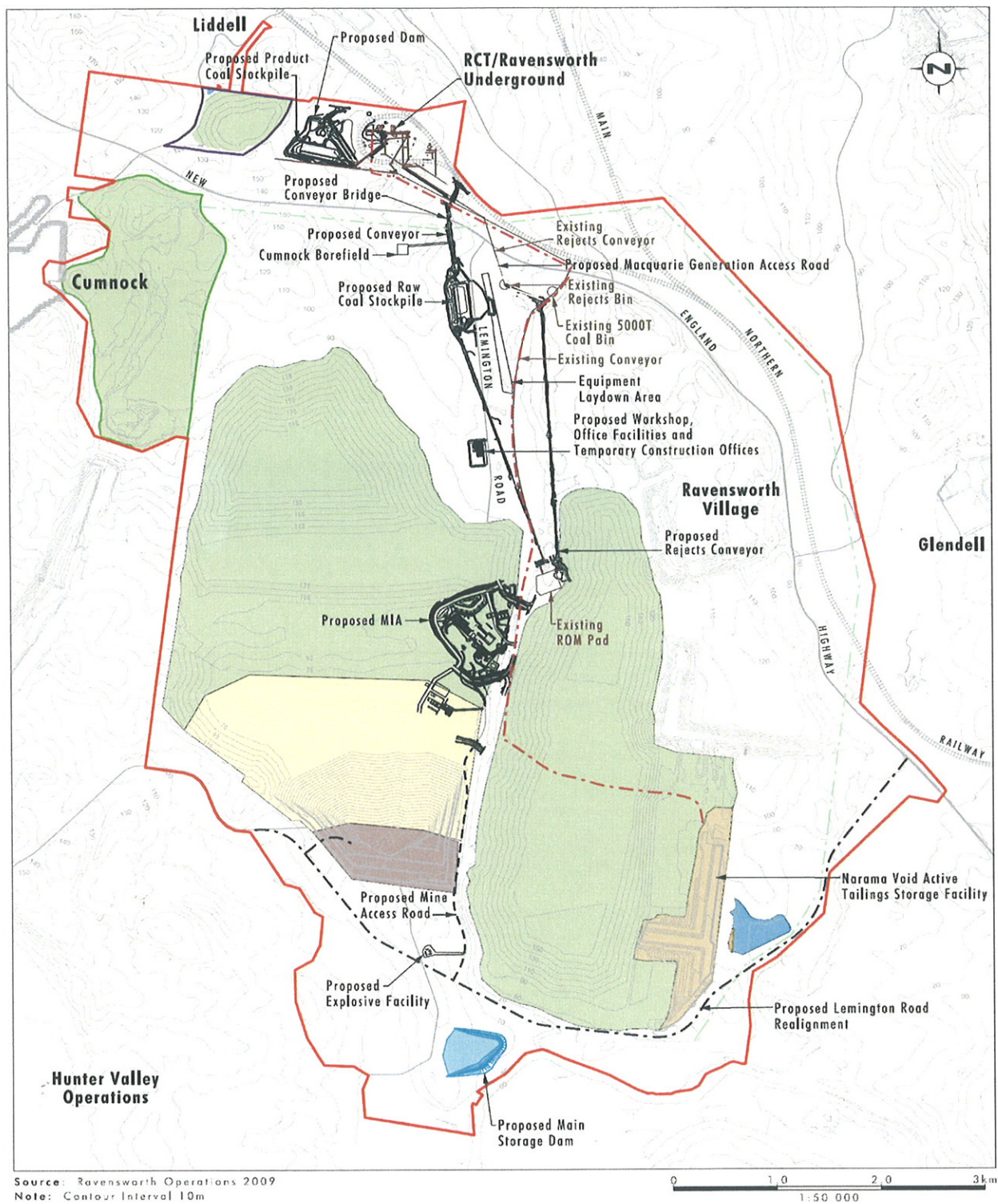


FIGURE 2.14

Conceptual Progression  
of Mining Year 25



## **APPENDIX 3 STATEMENT OF COMMITMENTS**

*[Note: References to tables, sections, figures and appendices are references to the EA]*

### **Production Limits**

- 6.3.1 The RCHPP will process up to 20 Mtpa of ROM coal per year incorporating ROM coal from the Project and other operations including RUM, Cumnock Wash Plant Pit and other potential users.
- 6.3.2 Up to 20 Mtpa will be loaded via the RCT loading facility, including coal from the Project, RUM, Cumnock Wash Plant Pit, Muswellbrook Coal and potential other users.

### **Hours of Operation**

- 6.3.3 Mining and associated activities for the Project may be undertaken 24 hours a day, seven days a week.
- 6.3.4 Construction will generally be undertaken during daylight hours. Construction activities may occur outside these hours when the Proponent is satisfied that such activities would meet relevant construction night-time noise criteria at the nearest private residences.

### **Refinement of Mine Plan**

- 6.3.5 Any refinements to the concept mine plan outlined in the EA report will be detailed and assessed as part of Mining Operations Plans or other relevant process.

### **Product Delivery**

- 6.3.6 Annual average and maximum daily train movements and tonnages, and tonnages of coal delivered locally by conveyor, will be reported in the Annual Review.
- 6.3.7 No product coal will be transported from the Project area by public road except in an emergency situation and with the prior agreement of the Director General.

### **Rail De-linking**

- 6.3.8 Prior to commencing increased loadings at Ravensworth Coal Terminal (RCT) above 8 Mtpa, the Proponent without contribution to costs by Coal & Allied, will complete design and construction of all related works including rail commissioning that will affect the de-linking of the Newdell Loop and the Ravensworth Loop. The de-linking (parameters defined below) of the loops will achieve separate track lane access onto the mainline known as the Main Northern Railway Line, for each of the Newdell Loop and Ravensworth Loop. The de-linking will be implemented in accordance with all legal and approval requirements. The consent and approval of all relevant landowners, being ARTC and Macquarie Generation, will be obtained prior to undertaking the proposed rail works.

The conceptual design for the rail de-link as shown on **Figure 2.18** is the preferred option to complete the de-linking. If the preferred option for rail de-link is determined to be unachievable for reasons outside of the Proponent's control, then the Proponent will design, construct and implement an alternative option that will achieve the parameters defining an 'effective de-link', as outlined below.

The parameters for an effective de-link are:

- de-linking works to include the decommissioning of the existing rail that links the existing Ravensworth Loop to the existing bi-directional Newdell Line.
- The de-linking of the Newdell Loop and the Ravensworth Loop will comprise design, construction and rail commissioning works to achieve separated track lane access onto the mainline known as the Main Northern Railway Line, for each of the Newdell Loop and the Ravensworth Loop. The re-linking of the separated Ravensworth Loop to the Main Northern Railway will occur on the mainline itself south of the Newdell Junction.
- The de-linking of the Newdell Loop and the Ravensworth Loop works will be constructed and rail commissioned prior to RCT rail loadings exceeding 8 Mtpa.

### **Service Relocations**

- 6.3.9 Powerlines will be relocated without interruption of supply to Coal & Allied or Orica, except where interruption of supply has been agreed to by Coal & Allied or Orica and the relevant service provider.

## Orica Plant

- 6.3.10 As described in **Section 5.5.8.1** the protective pillar beneath the Orica explosives plant will be retained to ensure continuous safe operation of the site.

## Closure and Rehabilitation

- 6.4.1 A detailed mine closure plan will be developed for the Project and submitted to the Director-General for approval at least five years prior to anticipated mine closure, in accordance with XCN standards for mine closure. The plan will be prepared in consultation with relevant stakeholders including the Department, I&I NSW, Singleton Council, other relevant government agencies as agreed with the Department, and the local community.
- 6.4.2 The rehabilitation strategy for the Project will be integrated with the proposed Biodiversity Management Plan for the Project through creating extensive areas of woodland within rehabilitated areas associated with the Project that target the following vegetation communities:
- Central Hunter Box-Ironbark Woodland;
  - Central Hunter Swamp Oak Forest;
  - Central Hunter Bullock Forest Regeneration; and
  - Grassland.
- 6.4.3 The Proponent will re-establish Emu Creek within the rehabilitated landscape. The reinstated Emu Creek will be designed in accordance with relevant guidelines and in consultation with the NSW Office of Water (NOW). The reinstated Emu Creek will be re-established within a suitable substrate within the rehabilitated landform and will resemble a natural creek system with native vegetation planted along the drainage channels as part of the rehabilitation, to maximise the long term stability of the drainage system and to enhance the in-stream and riparian habitat created. The detailed design of the proposed reinstatement of Emu Creek will be undertaken in accordance with all relevant approvals from NOW.
- 6.4.4 Recovery and management of any topsoil will be undertaken in accordance with the controls provided in **Section 5.1.1.5**.

## Air Quality

- 6.5.1 Measures to minimise dust emissions from the Project such as enclosures on top of overland conveyors, spray systems for permanent coal stockpiles, progressive site rehabilitation and revegetation, and haul road dust suppression will be included in the project design.
- 6.5.2 The Project will progressively rehabilitate disturbed areas, including the use of temporary rehabilitation on disturbed areas as appropriate to limit the potential for wind blown dust;
- 6.5.3 The Proponent will implement a range of dust controls as part of the Project, including:
- watering of active mining areas and haul roads that are subject to frequent vehicle movements;
  - all drill rigs will be equipped with dust control systems and be regularly maintained for effective use. These controls may include a combination of dust extractors, dust curtains, water injection systems and extraction systems;
  - automatic sprays fitted to the dump hopper to minimise dust from coal processing activities;
  - minimising the area of disturbance by restricting vegetation clearing ahead of mining operations and rehabilitating mine spoil dumps as soon as practicable after mining;
  - restricting blasting activities to acceptable wind speed and direction periods; and
  - use of real-time air quality monitor/s (TEOM) incorporating automatic alarms that will enable mine operators to take a proactive approach to minimising dust impacts by modifying operations when monitoring indicates that dust levels in the surrounding area are approaching relevant criteria.
- 6.5.4 The existing air quality monitoring program, including the ongoing use of continuous air quality monitor/s, will be maintained (or as otherwise agreed with DECCW and the Department). Monitoring results will be compiled and reviewed at least monthly to determine the need for any operational or management change to minimise air quality impacts. Results will also be compiled and analysed annually and reported in the Annual Review.

## Noise and Blasting

- 6.6.2 The Proponent will continue to implement the following controls to manage noise generation:
- 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.
- 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.
- 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.
- 6.6.5 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.

### **Blasting**

- 6.6.10 The Proponent will establish relevant blast impact criteria for the protection of archaeological site REA 86, through an assessment by a suitably qualified geotechnical engineer, as part of the Aboriginal Cultural Heritage Management Plan for the Project, prepared in consultation with registered Aboriginal stakeholders and DECCW, and to the satisfaction of the Department.
- 6.6.11 The Proponent will develop a blasting protocol in consultation with relevant service providers and infrastructure owners prior to the commencement of blasting within 500 metres of the infrastructure specified in **Table 6.2** and any relevant surface infrastructure at Macquarie Generation and ACOIL. This may include revising blasting criteria from that indicated in the EA developed in consultation with the relevant service provider or infrastructure owner.
- 6.6.12 The Proponent will continue its research into the effects of vibration on the 1000 ML dam wall in consultation the DSC. This research may revise the appropriate vibration criteria for this structure, and will be documented as part of the Blast Management Plan for the Project.

### **Biodiversity**

#### **Biodiversity Management Plan**

- 6.7.1 The Proponent will develop a Biodiversity Monitoring Program as part of the Rehabilitation Management Plan which will include:
- monitoring of areas of retained vegetation;
  - monitoring of rehabilitated areas using appropriate methodologies;
  - fauna monitoring;
  - monitoring of Emu Creek aquatic habitats (once reinstated as part of the rehabilitation program);
  - fauna habitat monitoring including nest box structures;
  - green and golden bell frog population surveys in accordance with the Green and Golden Bell Frog Key Population Management Plan (DECC 2007); and
  - monitoring of regeneration and revegetation initiatives to be designed and implemented within the proposed offset areas
- 6.7.2 The Proponent will investigate potential opportunities for the provision of contributions to the development of regional biodiversity initiatives, in consultation with DECCW and the Department.

### **Water Resources**

#### **Surface Water**

- 6.8.1 The Proponent will continue to undertake surface water quality monitoring in accordance with its existing program, with additional monitoring points to be established at Davis Creek for the life of the Project except where otherwise agreed with the Department and following consultation with DECCW. All surface water monitoring results will be reported in the Annual Review.
- 6.8.2 At least 12 months prior to the diversion of Emu Creek, the Proponent in conjunction with Coal & Allied will review the need to undertake any further studies to inform the detailed design of the

diversion to ensure the appropriate integration of the diversion with future mining operations associated with the Project and the adjacent Coal & Allied operations.

As part of the detailed design of the proposed Emu Creek diversion, the Proponent will obtain all relevant approvals in consultation with Coal & Allied and to the satisfaction of the Department.

### Groundwater

- 6.8.3 The Proponent will undertake two-monthly assessments of any departures from identified monitoring or predicted data trends. Departures from identified monitoring trends are taken to be consecutive data over a period of 6 months (minimum of three consecutive readings) exhibiting an increasing divergence in a negative impact sense from the previous data or from established or predicted trends. Any identified issues will be the subject of further investigation, in accordance with the relevant response procedures developed under the Groundwater Monitoring Program for the Project.
- 6.8.4 A formal review of the depressurisation of coal measures and comparison of responses with the aquifer model predictions will be undertaken biennially. Expert review will be undertaken by a suitably qualified hydrogeologist if the measured depressurisation in the coal measures exceeds the predicted depressurisation for the designated period.
- 6.8.5 The Proponent will develop appropriate remedial and recovery plans for identified stands of *Eucalyptus camaldulensis* along the Hunter River in the southern extent of the Project area on land controlled by the Proponent. The plans will be developed in consultation with NOW and DECCW, to the satisfaction of the Director-General.
- 6.8.6 The Proponent will seek to enter into a co-operative, transparent, data sharing agreement with surrounding operations, including Coal and Allied Hunter Valley Operations and Ashton, for the sharing of relevant piezometric data.

### Traffic and Transport

- 6.9.1 The proposed Lemington Road Realignment will be designed and constructed in accordance with the RTA's Road Design Guide (1999) and the proposed bridge over Bayswater Creek will be designed in accordance with AS5100.2, AS1700.0 and AS5100.5 (with a 100 year life), in consultation with the RTA and Singleton Council.
- 6.9.2 The Proponent will upgrade the intersection of the proposed Lemington Road Realignment and New England Highway in accordance with the RTA's Road Design Guide (1999). The design will be submitted for the approval of the RTA.
- 6.9.3 To manage any impacts from Project related road traffic, the Proponent will implement the following traffic management strategies:
- establishing an ongoing management procedure controlling vegetation regrowth at the New England Highway and Lemington Road Realignment intersection; and
  - road safety audits to be carried out at appropriate stages of the intersection upgrade and construction of the Lemington Road Realignment.

### Aboriginal Heritage

- 6.10.1 The Heritage Management Plan will address:
- management of sites and areas that will not be impacted by the Project;
  - monitoring and management of potential blasting impacts on site REA86;
  - management of the salvage of any artefacts or archaeological material, including the staged approach to salvage, from impacted areas in compliance with the research design and methodology included in **Appendix 11**;
  - management of subsurface testing and further subsurface salvage works in compliance with the research design and methodology included in **Appendix 11**;
  - ongoing management of salvaged artefacts and archaeological materials;
  - the provision of suitable Aboriginal cultural heritage offsets to balance the loss of Aboriginal and archaeological sites and values that will result from the development of the Project (refer to **Section 5.8.7**);
  - outline the process for the investigation of further detailed investigation of the conservation and management of the Hillcrest Offset Area as an Aboriginal heritage and archaeological resource, including:
    - review of additional literature (archaeological, environmental and historical) to provide the required context for the archaeological survey and significance assessment;
    - archaeological survey of the Hillcrest Offset Area in conjunction with Aboriginal stakeholder representatives, in accordance with relevant government agency;

- archaeological significance assessment, conducted by Umwelt archaeologists in accordance with government agency guidelines (NPWS 1997);
  - cultural values assessment, conducted by registered Aboriginal stakeholders;
  - management strategies, which will formally assess the conservation value of the Hillcrest Offset Area; and
  - reporting, with the aims, methods and results of all above works outlined in an additional Cultural Heritage Assessment report prepared in accordance with relevant government agency requirements (NPWS 1997, DEC 2004).
  - the responsibilities of all parties involved - the Proponent, Aboriginal stakeholders, archaeologists, DECCW;
  - specify the mechanism(s) for ongoing engagement with Aboriginal stakeholders, including the use of an Aboriginal stakeholder committee to be implemented over the life of the Project; and
  - the timeframes for the required Aboriginal heritage management works.
- 6.10.2 The Proponent will manage for long term conservation the 41 sites within the Ravensworth North Offset Area.
- 6.10.3 In addition to the long term conservation of sites and landforms within the Ravensworth North Offset Area, the Proponent commits to additional offsets for the loss of Aboriginal cultural heritage and archaeological sites and values that will result from the project. These include:
- to actively manage the site within the existing Farrells Creek 1 Aboriginal Artefact Management Area and the area of the Ravensworth Underground Mine Dam Conservation Area (or agreed alternative area) by undertaking culturally sensitive works to improve management of ongoing erosion of the site/area; and
  - to manage the sites that fall within the Project area but outside of the impact areas and designated conservation areas for the 29 year life of the mine by undertaking culturally sensitive works to improve management of ongoing erosion of the sites where monitoring of the sites indicates this is necessary.
- 6.10.4 The Proponent also commits to the following if agreed to by Aboriginal stakeholders:
- funding for the purchase of display cabinets and for the establishment of a display of artefacts salvaged from the project area that incorporates a visual display of the salvage of the artefacts and of the interpretation of the evidence derived by their analysis from an Aboriginal and archaeological perspective;
  - suitable venues for this would be the Teaching/Keeping Place currently in the planning stage by XCN in association with Beltana Highwall Mining and other interested parties; or the Keeping Place currently in planning by the Wanaruah Local Aboriginal Land Council;
  - funding to support the establishment of IT systems at the Keeping/Teaching place;
  - funding to support training for Aboriginal community members to provide skills to allow them to work within the Keeping/Teaching Place (e.g. archival training, book keeping training, computer skills, hospitality training);
  - training in stone artefact attribute recording and basic analysis;
  - the Proponent will provide funding to undertake non-invasive 3D scanning of the Bowmans Creek 16 Engraving Site even though there is no proposal to impact this site from mining.

## Historical Heritage

- 6.11.1 The Proponent will implement the following historical heritage management measures:
- management of blasting practices to meet relevant blast impact assessment criteria at listed heritage sites/items within the vicinity of the Project area;
  - a qualified heritage consultant to NSW Heritage Office's standards will undertake archival recording of historic heritage sites of local significance directly or indirectly impacted by the Project (HH1, HH4, HH5, HH11, HH14, HH15, HH16, HH17, and HH18) prior to the commencement of mining.
- 6.11.2 In the unlikely event that unexpected archaeological remains or potential heritage items not identified in the EA are discovered during the Project, all works in the immediate area will cease, the remains and potential impacts will be assessed by a qualified archaeologist or heritage consultant and, if necessary, the Heritage Branch, the Department will be notified in accordance with the *Heritage Act 1977*.

## Visual Controls

- 6.12.1 The Proponent will implement the following measures to mitigate visual impacts from the Project:
- shaping, stabilising and rehabilitation of the out of pit overburden emplacement areas as soon as practicable after mining to minimise the visual impact of these areas on the amenity of the surrounding area;

- additional screening plantings will be utilised in strategically located positions to augment existing plantings and limit views into the Project from the New England Highway and the proposed Lemington Road Realignment;
- ensuring that all external lighting associated with the Project complies with Australian Standard AS4282 (INT) 1995 – *Control of Obtrusive Effects of Outdoor Lighting*;
- all buildings potentially visible to the public will be coloured in suitable natural tones.

### **Greenhouse Gas and Energy**

- 6.13.1 The Proponent will develop and implement an Energy Management System that will address all aspects of energy management for the Project.
- 6.13.2 At an operational level, the Proponent will aim to improve energy efficiency and reduce greenhouse emissions from the Project via:
- the use of energy management systems;
  - seeking continuous improvement in energy efficiency in the mining fleet, stationary equipment, mining processes and coal preparation;
  - investigation of energy efficiency opportunities for mobile and fixed plant and equipment through the detailed design of the Project.
- 6.13.3 The Proponent will continue to monitor and seek to improve its energy and greenhouse gas performance against performance targets.
- 6.13.4 The Proponent will report its greenhouse and energy performance via legislative reporting requirements.

### **Waste Management**

- 6.14.1 No waste will be disposed of on site except for inert wastes permissible under the EPL obtained for the Project with all other waste disposed of at appropriately licensed waste management facilities located off site.
- 6.14.2 The Proponent will continue to use a bioremediation area located within disturbed areas on site, to treat materials affected by hydrocarbons.
- 6.14.3 The Proponent will manage coarse reject and tailings associated with the processing and handling of coal in accordance with the conceptual management strategy outlined in **Section 2.5.10** of the EA

### **Social and Economic**

- 6.15.1 The Proponent will continue to engage the community regarding the Project and operations in general, including use of the following mechanisms:
- circulation of information relating to the commencement of construction and/or mining;
  - distribution of a community newsletter as appropriate and on at least a six monthly basis;
  - a Community Consultative Committee, as considered appropriate by Department of Planning;
  - establishment of a project-specific website; and
  - community information days to be held periodically at the Project site.
- 6.15.2 The Proponent will continue to operate a 24 hour community hotline for receipt of community complaints. Community complaints will be responded to within 24 hours of receipt. All complaints will be investigated and the results of the investigation reported to the complainant in a timely manner.

### **Economic Development – Employment, Education and Training**

- 6.15.3 The Proponent will continue its aims of trying to maximise local employment and provide training and education opportunities through:
- advertising employment, apprenticeships and traineeships in local or regional media as appropriate;
  - providing an employment pack that allows local residents to register their interest in employment opportunities at the Proponent's office;
  - sharing information about mining careers with the Proponent and corporate entity with local schools;
  - offering training opportunities through partnerships with local tertiary education providers;
  - participating in the corporate school scholarship program; and
  - continued implementation of Corporate and the Proponent's Corporate Social Involvement (CSI) programs.

- 6.15.4 In addition to current practices, the Proponent proposes to:
- formalise a policy that gives local residents employment preference where they have the required skills and experience, and demonstrate a cultural fit with the organisation;
  - provide access to the corporate careers centre via the Proponent's website so that local residents can easily register their interest in employment online; and
  - develop partnerships with other local organisations to promote employment opportunities in non-mining related sectors to the families of the Proponent's employees.

#### **Economic Development – Business Opportunities**

- 6.15.5 The Proponent will continue to give preference to sourcing materials and services from local companies where all other factors are equal.

#### **Cumulative Impacts**

- 6.15.6 The Proponent will continue to work with representatives from neighbouring mines to discuss and address issues of common concern in relation to management of cumulative impacts.

## APPENDIX 4 PREVIOUS EAS

### **Narama Mine**

Development Application 135/90 and accompanying Environmental Impact Statement prepared by Envirosiences Pty Ltd, dated September 1990, as amended by the following:

- the modification application and accompanying environmental assessment prepared by Umwelt (Australia) Pty Limited, dated 23 June 2005;
- the modification application and accompanying environmental assessment titled *Proposed Increase in Production – Narama Coal Mine*, prepared by Umwelt (Australia) Pty Limited, dated August 2008;
- the modification application and accompanying environmental assessment titled *Narama Extended Project*, prepared by Umwelt (Australia) Pty Limited, dated October 2009.

### **Ravensworth West Mine**

Development Application 165/97 and accompanying environmental assessment titled *Extension of Mining Operations at Ravensworth Mine - Environmental Impact Statement*, prepared by ERM Mitchell McCotter, dated August 1997, as amended by the following:

- the report titled *Extension of Mining Operations at Ravensworth West - Environmental Impact Statement. Supplementary Report*, prepared by ERM Mitchell McCotter, dated March 1998.

### **Cumnock Mine**

Development Application 123-05-01 and accompanying environmental assessment titled *Cumnock No 1 Colliery Pty Ltd Mine Life Extension Environmental Impact Statement*, prepared by HLA Envirosiences Pty Ltd, dated May 2000, as amended by the following:

- the modification application and accompanying environmental assessment titled *Cumnock Wash Plant Mining and Rehabilitation Project*, prepared by Umwelt (Australia) Pty Limited, dated December 2008.

Development Application 169/96 and accompanying environmental assessment.

### **Ravensworth Coal Terminal**

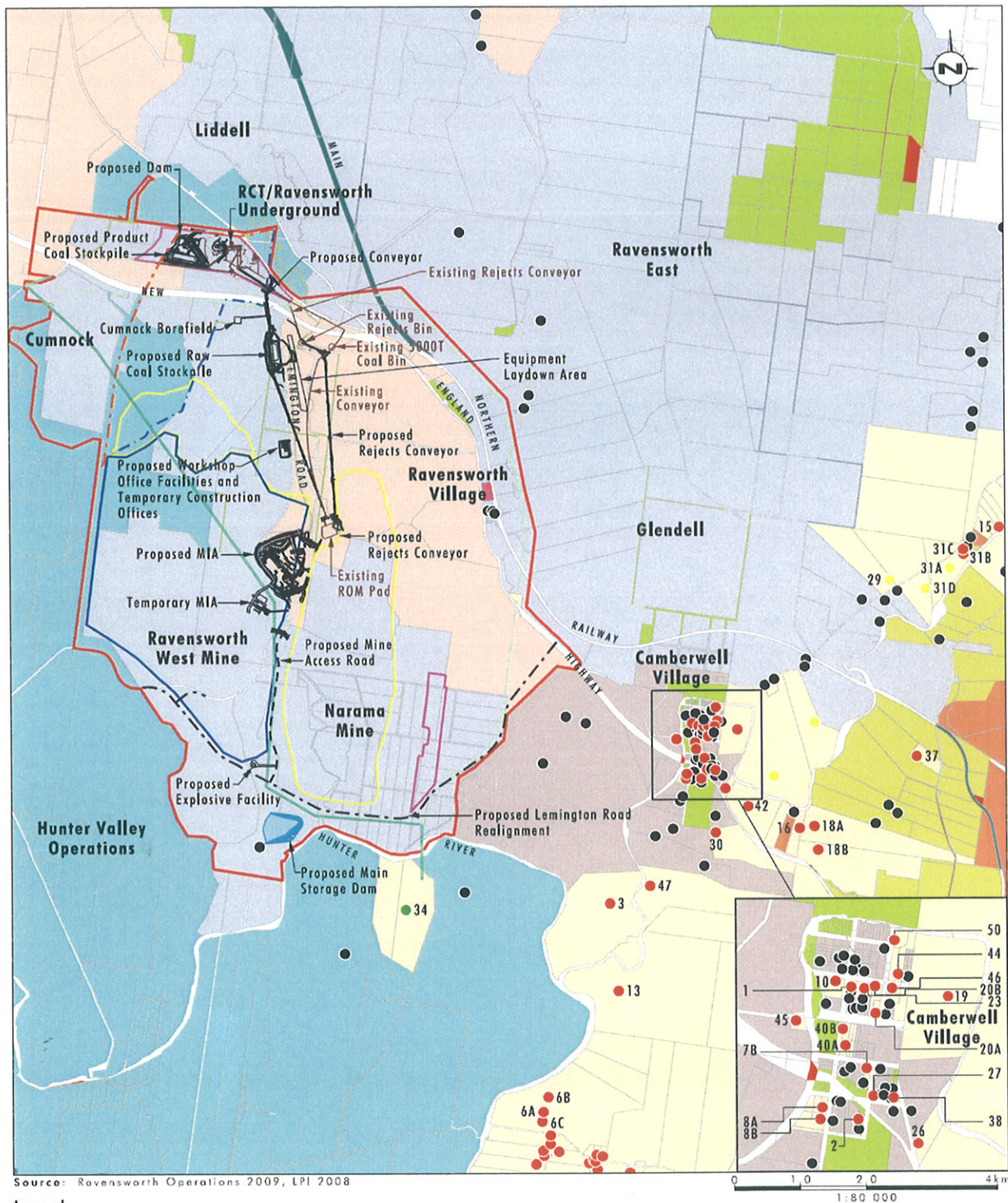
The 1982 Development Application and accompanying environmental assessment.

### **Ravensworth Underground Mine – Coal Stockpile Facility**

Development Application 161-7-2005 and accompanying environmental assessment titled *Proposed Coal Stockpile at Newpac No.1 Colliery, Ravensworth – Environmental Impact Statement*, dated July 2005.



## APPENDIX 5 RECEIVER LOCATION PLANS



### Legend

- |                                                                                                                                                   |                                                                                                                                                                            |                                                                                                                                               |                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <span style="border: 1px solid red; display: inline-block; width: 10px; height: 10px;"></span> Project Area                                       | <span style="color: blue;">—</span> Proposed Infrastructure                                                                                                                | <span style="background-color: #f0f0f0; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Ashton Coal       | <span style="color: green;">●</span> Private Residence with Agreement                                   |
| <span style="border: 1px solid blue; display: inline-block; width: 10px; height: 10px;"></span> Ravensworth North Pit                             | <span style="color: blue;">---</span> Existing EnergyAustralia 66kV Powerline                                                                                              | <span style="background-color: #ffcccc; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> No Title          | <span style="color: yellow;">●</span> Private Residence with Acquisition Rights by Xstrata Managed Mine |
| <span style="border: 1px solid yellow; display: inline-block; width: 10px; height: 10px;"></span> Out of Pit Overburden Emplacement               | <span style="color: red;">---</span> Proposed EnergyAustralia 66kV Powerline                                                                                               | <span style="background-color: #ffcc99; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Integra           |                                                                                                         |
| <span style="border: 1px solid magenta; display: inline-block; width: 10px; height: 10px;"></span> Narama Extended (subject to separate approval) | <span style="background-color: #800080; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Wanaruah Local Aboriginal Land Council         | <span style="background-color: #cccccc; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Unknown           |                                                                                                         |
| <span style="border: 1px solid red; display: inline-block; width: 10px; height: 10px;"></span> Ravensworth Coal Terminal                          | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> RHA Pastoral Company Pty Ltd                   | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Crown Land        |                                                                                                         |
| <span style="color: blue;">---</span> Existing 330kV Transmission Line                                                                            | <span style="background-color: #ffcc99; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Boral Industries                               | <span style="background-color: #800080; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Singleton Council |                                                                                                         |
| <span style="color: blue;">---</span> Proposed 330kV Transmission Line                                                                            | <span style="background-color: #ffcc99; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Macquarie Generation                           | <span style="background-color: #008080; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> State Rail        |                                                                                                         |
| <span style="color: red;">---</span> Proposed Lemington Road Realignment                                                                          | <span style="background-color: #cccccc; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Xstrata or Subsidiary or Joint Venture Parties | <span style="color: black;">●</span> Mine Owned Residence                                                                                     |                                                                                                         |
| <span style="color: red;">---</span> Proposed Mine Access Road                                                                                    | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Coal & Allied                                  | <span style="color: red;">●</span> Private Residence                                                                                          |                                                                                                         |
| <span style="color: black;">---</span> Existing Infrastructure                                                                                    | <span style="background-color: #ffffcc; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Private                                        |                                                                                                                                               |                                                                                                         |

FIGURE 1.5

Land Ownership





### Legend

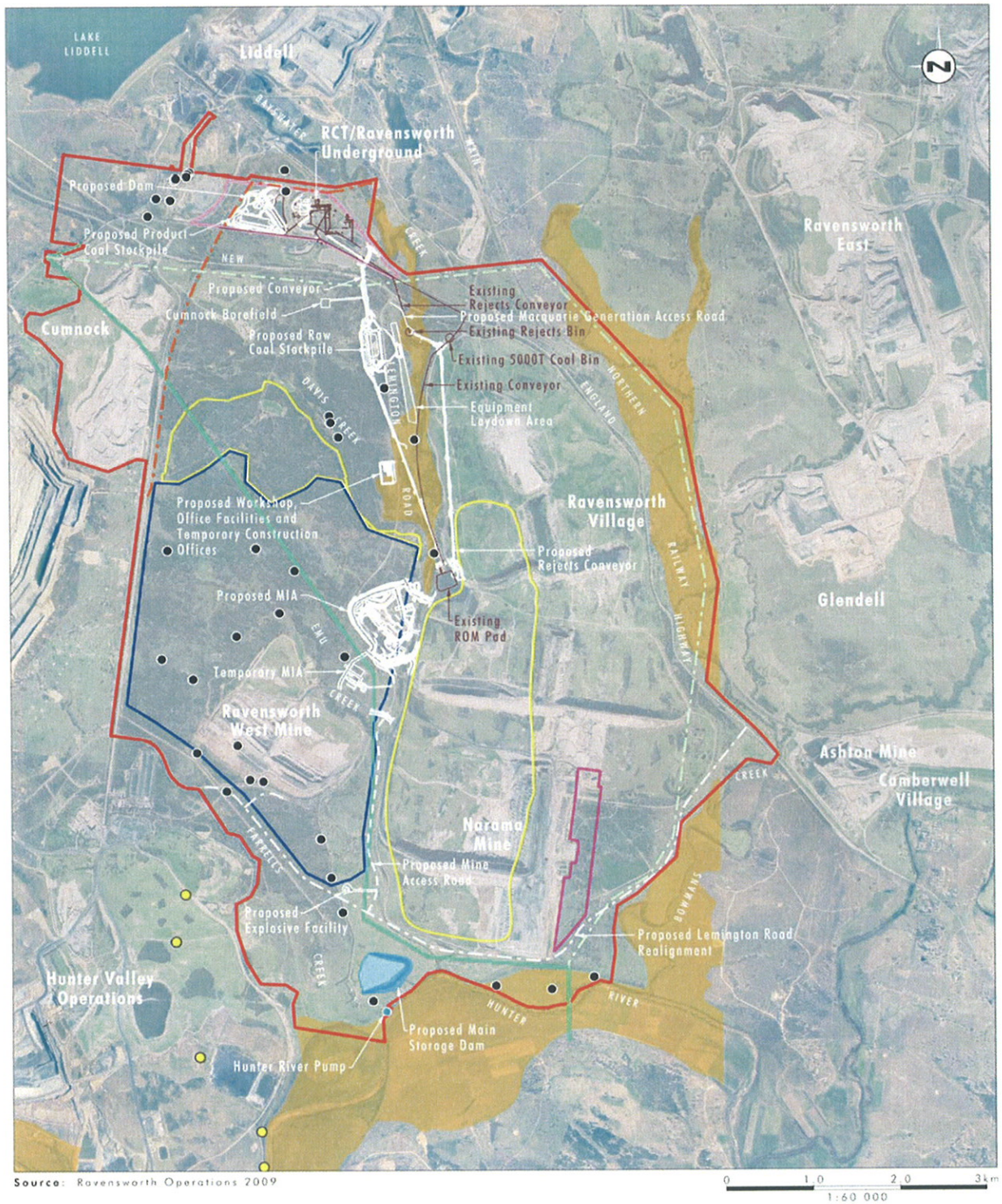
- |                                                                                                                                                   |                                                                                                                                   |                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <span style="border: 1px solid red; display: inline-block; width: 20px; height: 10px;"></span> Project Area                                       | <span style="border-bottom: 1px solid black; display: inline-block; width: 20px;"></span> Existing Infrastructure                 | <span style="border-bottom: 1px solid black; display: inline-block; width: 20px;"></span> Ridge Line |
| <span style="border: 1px solid blue; display: inline-block; width: 20px; height: 10px;"></span> Ravensworth North Pit                             | <span style="border-bottom: 1px solid green; display: inline-block; width: 20px;"></span> Proposed Infrastructure                 |                                                                                                      |
| <span style="border: 1px solid yellow; display: inline-block; width: 20px; height: 10px;"></span> Out of Pit Overburden Emplacement               | <span style="border-bottom: 1px dashed red; display: inline-block; width: 20px;"></span> Proposed EnergyAustralia 66kV Powerline  |                                                                                                      |
| <span style="border: 1px solid purple; display: inline-block; width: 20px; height: 10px;"></span> Narama Extension (Subject to Separate Approval) | <span style="display: inline-block; width: 10px; height: 10px; background-color: black;"></span> Mine Owned Residence             |                                                                                                      |
| <span style="border-bottom: 1px solid green; display: inline-block; width: 20px;"></span> Existing 330kV Transmission Line                        | <span style="display: inline-block; width: 10px; height: 10px; background-color: red;"></span> Private Residence                  |                                                                                                      |
| <span style="border-bottom: 1px dashed green; display: inline-block; width: 20px;"></span> Proposed 330kV Transmission Line                       | <span style="display: inline-block; width: 10px; height: 10px; background-color: green;"></span> Private Residence with Agreement |                                                                                                      |
| <span style="border-bottom: 1px solid green; display: inline-block; width: 20px;"></span> Proposed Lomington Road Realignment                     | <span style="display: inline-block; width: 10px; height: 10px; background-color: orange;"></span> Monitoring Location             |                                                                                                      |
| <span style="border-bottom: 1px solid green; display: inline-block; width: 20px;"></span> Proposed Mine Access Road                               | <span style="display: inline-block; width: 10px; height: 10px; background-color: purple;"></span> Meteorological Station          |                                                                                                      |

FIGURE 5.14

Noise Monitoring Locations  
used in Assessment



## APPENDIX 6 ALLUVIALS



### Legend

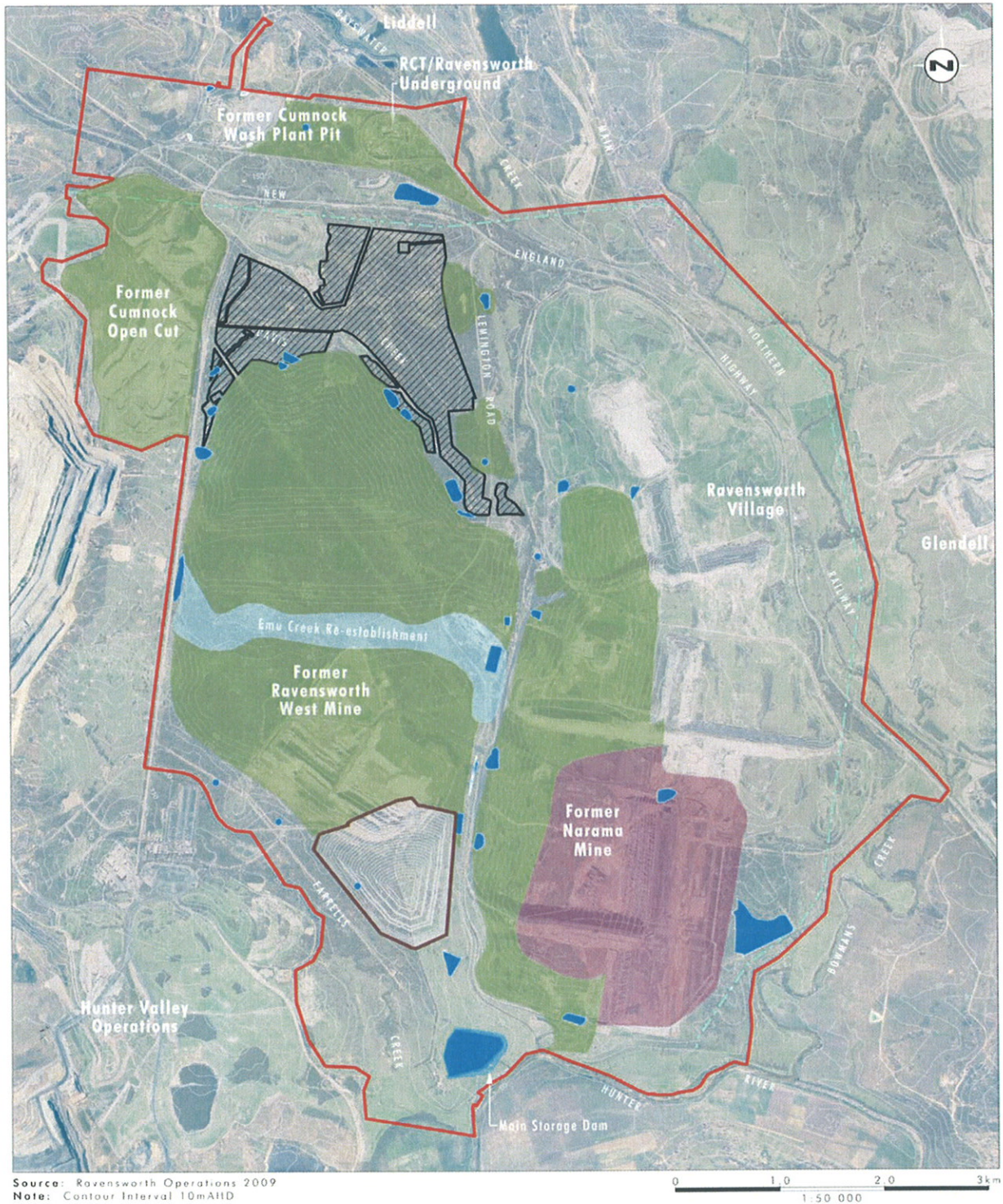
- |                                                 |                                         |
|-------------------------------------------------|-----------------------------------------|
| Project Area                                    | Proposed Mine Access Road               |
| Ravensworth North Pit                           | Existing Infrastructure                 |
| Out of Pit Overburden Emplacement               | Proposed Infrastructure                 |
| Narama Extension (Subject to Separate Approval) | Proposed EnergyAustralia 66kV Powerline |
| Ravensworth Coal Terminal                       | Registered Bore Locations               |
| Existing 330kV Transmission Line                | Piezometer Locations                    |
| Proposed 330kV Transmission Line                | Alluvium                                |
| Proposed Lemington Road Realignment             |                                         |

FIGURE 5.31

Existing Groundwater Monitoring  
Locations and Registered Bores



## APPENDIX 7 REHABILITATION PLAN AND OFFSET STRATEGY



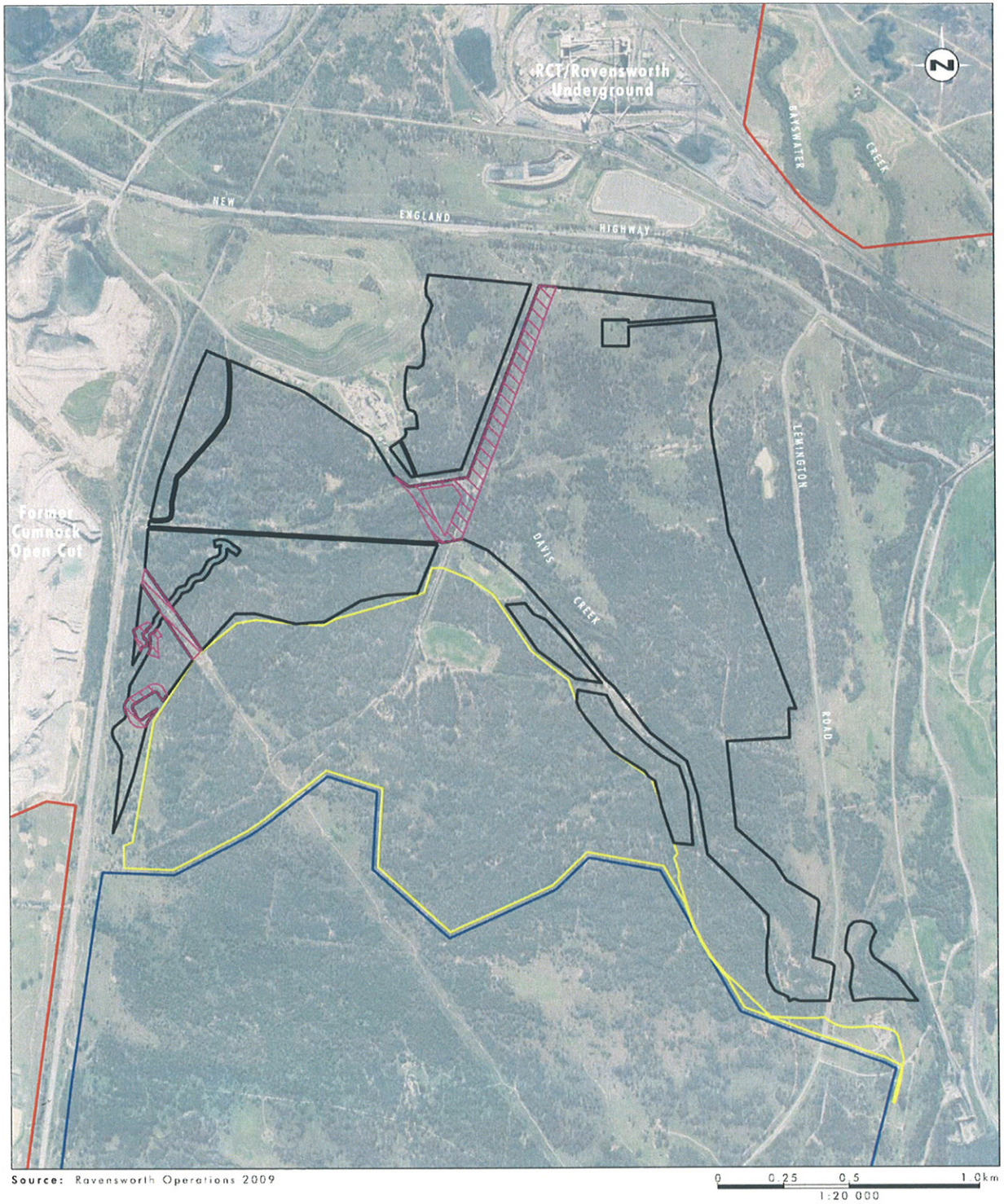
### Legend

- |                                                                                                                                                           |                                                                                                                                                |                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <span style="border: 1px solid red; display: inline-block; width: 20px; height: 10px;"></span> Project Area                                               | <span style="background-color: #d3d3d3; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Final Void         | <span style="background-color: #d3d3d3; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Conceptual Final Landform Areas |
| <span style="background-color: #4682b4; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Sediment Dam                  | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Grazing            | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Woodland                        |
| <span style="background-color: #808080; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Ravensworth North Offset Area | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Riparian / Wetland |                                                                                                                                                             |
| <span style="border-bottom: 1px solid blue; display: inline-block; width: 20px;"></span> Proposed 330kV Transmission Line                                 |                                                                                                                                                |                                                                                                                                                             |

FIGURE 2.15

Final Conceptual Landform





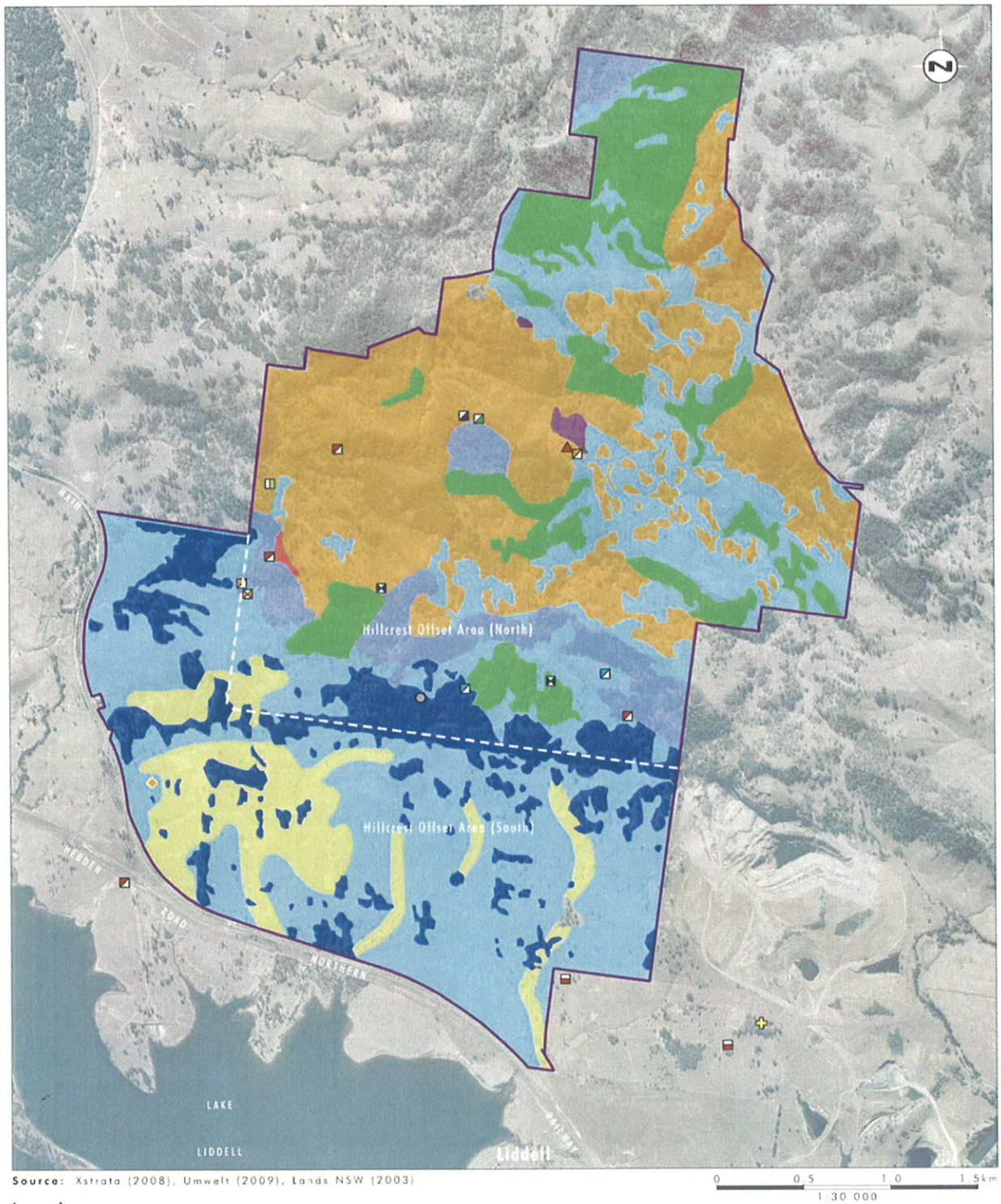
#### Legend

- Project Area
- Ravensworth North Pit
- Out of Pit Overburden Emplacement
- Ravensworth North Offset Area
- ▨ Temporary Disturbance

FIGURE 1.2

Ravensworth North Offset Area  
with identified Temporary Disturbance Area





#### Legend

- |                                                                                                                                                                       |                                                             |                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <span style="border: 1px solid purple; padding: 2px;"> </span> Hillcrest Offset Area                                                                                  | <span style="color: orange;">◆</span> Grey-crowned Babbler  | <span style="color: green;">■</span> Brown Treecreeper                                                  |
| <span style="background-color: purple; width: 10px; height: 10px; display: inline-block;"></span> Grass Tree Low Woodland                                             | <span style="color: blue;">■</span> Masked Owl (Heard)      | <span style="color: red;">■</span> Speckled Warbler                                                     |
| <span style="background-color: red; width: 10px; height: 10px; display: inline-block;"></span> Black Cypress Pine Low Forest                                          | <span style="color: blue;">■</span> Masked Owl (Sighted)    | <span style="color: brown;">■</span> Koala                                                              |
| <span style="background-color: blue; width: 10px; height: 10px; display: inline-block;"></span> Central Hunter Ironbark-Spotted Gum-Grey Box Forest                   | <span style="color: brown;">■</span> Spotted-tailed Quail   | <span style="background-color: yellow; border: 1px solid black; padding: 2px;"> </span> Varied Sittella |
| <span style="background-color: orange; width: 10px; height: 10px; display: inline-block;"></span> Barrington Footslopes Dry Spotted Gum Forest                        | <span style="color: grey;">●</span> Squirrel Glider (Heard) | <span style="color: brown;">■</span> <i>Cymbidium canaliculatum</i>                                     |
| <span style="background-color: lightblue; width: 10px; height: 10px; display: inline-block;"></span> Rough-barked Apple Forest on Sheltered Slopes and Drainage Lines | <span style="color: green;">+</span> Eastern Freetail-bat   |                                                                                                         |
| <span style="background-color: green; width: 10px; height: 10px; display: inline-block;"></span> Dry Gully Rainforest                                                 | <span style="color: orange;">■</span> Large-eared Pied Bat  |                                                                                                         |
| <span style="background-color: lightblue; width: 10px; height: 10px; display: inline-block;"></span> Passive / Natural Regeneration (inc. grazing management)         | <span style="color: brown;">▲</span> Eastern Bentwing-bat   |                                                                                                         |
| <span style="background-color: yellow; width: 10px; height: 10px; display: inline-block;"></span> Remediation Works (inc. assisted rehabilitation)                    | <span style="color: brown;">■</span> Large-footed Myotis    |                                                                                                         |

FIGURE 5.25

Hillcrest Offset Area  
Management Commitments  
(Year 5)





Source: Xstrata Coal

0 1 0 2 5 5.0 km  
1:100 000

#### Legend

- Study Area
- Revised Ravensworth North Offset Area
- Hillcrest Offset Area
- Clifton Offset Area
- Stewart Offset Area

ATTACHMENT 1

Revised Biodiversity Offset Strategy