

Development Consent

Section 101 of the *Environmental Planning and Assessment Act 1979*

I determine the application to carry out the proposed development by granting consent to the application, subject to the conditions in schedules 1 to 5.

2 May 1983

Eric Bedford
Minister for Planning and Environment

[Black type represents Feb 2008 modification – replaced all previous conditions]

SCHEDULE 1 DEVELOPMENT DESCRIPTION

Application Number:	DA 80/952
Applicant:	Xstrata Mt Owen Pty Limited
Land:	See Appendix 1
Development:	The Glendell Open Cut Coal Mine and Associated Infrastructure

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DEFINITIONS

Acquisition Zone	The privately-owned land listed in Table 1 where there are no negotiated agreements in place between the Applicant and the applicable landowner
Applicant	Xstrata Mt Owen Pty Limited, or its successors
AEMR	Annual Environmental Management Report
BCA	Building Code of Australia
CCC	Community Consultative Committee
Council	Singleton Shire Council
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
DECC	Department of Environment and Climate Change
Department	Department of Planning
Director-General	Director-General of Department of Planning, or delegate
DPI	Department of Primary Industries
DST	Daylight Savings Time
DWE	Department of Water and Energy
EA	Environmental assessment titled <i>Environmental Assessment for Modification of Glendell Mine Operations, Volumes 1-3</i> , dated August 2007, including the response to submissions
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 <i>Protection of the Environment Operations Act 1997</i>
EST	Eastern Standard Time
Evening	The period from 6pm to 10pm
Land	Land 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 consent
Mine Water	Water that accumulates within active mining areas, coal reject emplacement areas, tailings dams and infrastructure areas
Mining Area	The area hatched green on the Development Layout Plan in Appendix 2
Mining Operations	Includes all coal extraction, processing, and transportation activities carried out on site
Minister	Minister for Planning, or delegate
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
Offset Strategy	The conservation and enhancement program described in the EA
Privately-owned land	Land that is not owned by a public agency, or a mining company (or its subsidiary)
Development	The development as described in the EA
Reasonable and Feasible	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. Feasible relates to engineering considerations and what is practical to build
Response to Submissions	The Applicant's response to issues raised in submissions, dated October 2007
ROM	Run-of-Mine
RTA	Roads and Traffic Authority
Site	The land referred to in Appendix 1
Statement of Commitments	The Applicant's commitments in Appendix 3.

SCHEDULE 2 ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

1. The Applicant shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the development.

Terms of Consent

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

Notes:

- *The general layout of the development is shown in Appendix 2.*
- *The statement of commitments is reproduced in Appendix 3.*

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

Limits on Consent

5. Mining operations may take place until the end of June 2024.

Note: Under this consent, the Applicant is required to rehabilitate the site and provide offsets to the satisfaction of the Director-General and DPI. Consequently this consent will continue to apply in all other respects other than the right to conduct mining operations until the site has been rehabilitated and the offsets provided to a satisfactory standard.

6. The Applicant shall not extract more than 4.5 million tonnes of ROM coal a year from the site.
7. The Applicant shall not transport any coal from the site using public roads.

Management Plans/Monitoring Programs

8. With the approval of the Director-General, the Applicant may submit any management plan or monitoring program required by this consent on a progressive basis.

Integrated Environmental Management

9. The Applicant shall, as far as is practicable, integrate the environmental management, monitoring, auditing and reporting requirements of this consent with the environmental management, monitoring, auditing and reporting requirements of the adjoining Mt Owen and Ravensworth East mines.

Structural Adequacy

10. The Applicant 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.

Notes:

- *Under Part 4A of the EP&A Act, the Applicant 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 development.*

Operation of Plant and Equipment

11. The Applicant shall ensure that all plant and equipment used on site is:
 - (a) maintained in a proper and efficient condition; and
 - (b) operated in a proper and efficient manner.

Development Contributions

12. By the end of July 2008 (unless otherwise agreed by the Director-General), the Applicant shall enter into an agreement with Singleton Council to provide development contributions to Council for the development, in accordance with Division 6 of Part 4 of the EP&A Act.

If the Applicant 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 SPECIFIC ENVIRONMENTAL CONDITIONS

ACQUISITION OF AFFECTED PROPERTIES

Acquisition Upon Request

- Upon receiving a written request for acquisition from the owner of the land listed in Table 1, the Applicant shall acquire the land in accordance with the procedures in conditions 9-11 of schedule 4.

Table 1: Land subject to acquisition upon request

37a & 37b – Richards	Lot 13 DP 6830 – Gardner
61 – Donellan	Lot 12 DP 6830 – Noble
62 – Noble (b)	Lot 1 DP 770733 – Noble
65 – Noble	

NOISE

Noise Impact Assessment Criteria

- The Applicant shall ensure that the noise generated by the development does not exceed the noise impact assessment criteria in Table 2 at any residence on privately-owned land, or on more than 25% of any privately-owned land.

Table 2: Noise impact assessment criteria dB(A)

Land Number / Receiver	Day/Evening/Night <i>L_{Aeq}(15 minute)</i>	Night <i>L_{A1}(1 minute)</i>
<i>Camberwell Village A</i>		
30 – Ninness 33 – Peachey 37c – Richards 53 – Yates	42	45
11 – Chisholm 22b – Turner 35 – Pugh	41	45
Other privately-owned land in Camberwell Village A	40	45
<i>Camberwell Village B</i>		
20 – Foord 21a & 21b – Merchant 38 – Robertson 47 & 50 – Vollebregt & Clarke	42	45
6 – Bennett 24 – Lopes	40	45
4 – Standing 40 – Smiles	39	45
32 – Green 44 – Stapleton	38	45
Other privately-owned land in Camberwell Village B	37	45
<i>Camberwell Village C</i>		
27 – McInerney	40	45
31 – Olofsson	38	45
Other privately-owned land in Camberwell Village C	35	45
<i>Other Privately-owned Land</i>		
37a & 37b – Richards 83 – Westcott 110 – Hall	38	45
34 – Poulton 87 – Fairfull	37	45

Land Number / Receiver	Day/Evening/Night <i>L_{Aeq}(15 minute)</i>	Night <i>L_{A1}(1 minute)</i>
9 – Burgess 18 – Hall 45 & 46 – Tisdell	36	45
All other privately-owned land	35	45
Camberwell Hall and St Clements Church	40	-

However, if the Applicant has a written negotiated noise agreement with any landowner of the land listed in Table 2, and a copy of this agreement has been forwarded to the Department and DECC, then the Applicant may exceed the noise limits in Table 2 in accordance with the negotiated noise agreement.

Notes:

- The land numbers and receiver references are as described in the EA, and shown on the figures in Appendix 4;
- To determine compliance with the *L_{Aeq}(15 minute)* noise limits, noise from the development is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- To determine compliance with the *L_{A1}(1 minute)* noise limits, noise from the development is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).
- The noise emission limits identified in the above table apply under meteorological conditions of:
 - wind speeds of up to 3 m/s at 10 metres above ground level; or
 - temperature inversion conditions of up to 3°C/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.

Land Acquisition Criteria

- If the noise generated by the development exceeds the criteria in Table 3 at any residence on privately-owned land, or on more than 25% of any privately-owned land, the Applicant shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 9-11 of schedule 4.

Table 3: Land acquisition criteria dB(A)

Land	Day/Evening/Night <i>L_{Aeq}(15 minute)</i>
Camberwell Village A	45
Camberwell Village B	42
Camberwell Village C	40
All other privately-owned land, excluding the land listed in Table 1.	40

Note: Noise generated by the development is to be measured in accordance with the notes presented in Table 2.

Cumulative Noise Criteria

- The Applicant shall take all reasonable and feasible measures to ensure that the noise generated by the development combined with the noise generated by other mines does not exceed the following amenity criteria at any residence on privately-owned land, or on more than 25% of any privately-owned land, excluding the land listed in Table 1, to the satisfaction of the Director-General:
 - *L_{Aeq}(11 hour)* 50 dB(A) – Day;
 - *L_{Aeq}(4 hour)* 45 dB(A) – Evening; and
 - *L_{Aeq}(9 hour)* 40 dB(A) – Night.
- If the noise generated by the development combined with the noise generated by other mines exceeds the following amenity criteria at any residence on privately-owned land, or on more than 25% of any privately-owned land, excluding the land listed in Table 1, then upon receiving a written request for acquisition from the landowner, the Applicant shall acquire the land on as equitable basis as possible with the relevant mines, in accordance with the procedures in conditions 9-11 of schedule 4, to the satisfaction of the Director-General:
 - *L_{Aeq}(11 hour)* 53 dB(A) – Day;
 - *L_{Aeq}(4 hour)* 48 dB(A) – Evening; and
 - *L_{Aeq}(9 hour)* 43 dB(A) – Night.

Note: The cumulative noise generated by the development combined with the noise generated by other mines is to be measured in accordance with the relevant procedures in the NSW Industrial Noise Policy.

Additional Noise Mitigation Measures

6. Upon receiving a written request from:
- a landowner of the land listed in Table 1 (unless the landowner has requested acquisition); or
 - a landowner of the land listed in Table 4 (except where a negotiated noise agreement is in place); or
 - the owner of any residence where subsequent noise monitoring shows the noise generated by the development is greater than, or equal to, the criteria in Table 5 (except where a negotiated noise agreement is in place),
- the Applicant shall implement additional noise mitigation measures such as double glazing, insulation, and/or air conditioning at any residence on the land in consultation with the landowner.

These additional mitigation measures must be reasonable and feasible.

If within 3 months of receiving this request from the landowner, the Applicant 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.

By the end of April 2008, the Applicant shall notify all applicable landowners that they are entitled to receive additional noise mitigation measures, to the satisfaction of the Director-General.

Table 4: Land subject to additional noise mitigation upon request

6 – Bennett	37a – Richards
20 – Foord	38 – Robertson
21a & 21b – Merchant	47 & 50 – Vollebregt & Clarke
24 – Lopes	83 – Westcott
27 – McInerney	110 – Hall
31 – Olofsson	

Table 5: Additional noise mitigation criteria dB(A)

Land	Day/Evening/Night <i>L_{Aeq}(15 minute)</i>
Camberwell Village A	43
Camberwell Village B	40
Camberwell Village C	38
All other privately-owned land, excluding the land listed in Table 1.	38

Note: Noise generated by the development is to be measured in accordance with the notes presented below Table 2.

Continuous Improvement

7. The Applicant shall:
- implement all reasonable and feasible best practice noise mitigation measures;
 - investigate ways to reduce the noise generated by the development, including maximum noise levels which may result in sleep disturbance; and
 - report on these investigations and the implementation and effectiveness of these measures in the AEMR.

Monitoring

8. The Applicant shall prepare and implement a Noise Monitoring Program for the development to the satisfaction of the Director-General. This program must:
- be prepared in consultation with DECC;
 - be submitted to the Director-General for approval by the end of April 2008; and
 - include a:
 - combination of real-time and supplementary attended monitoring measures; and
 - noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria in this consent.

BLASTING AND VIBRATION

Airblast Overpressure Impact Assessment Criteria

9. The Applicant shall ensure that the airblast overpressure level from blasting at the development does not exceed the criteria in Table 6 at any residence on privately-owned land.

Table 6: Airblast overpressure impact assessment criteria

Airblast overpressure level (dB(Lin Peak))	Allowable exceedance
115	5% of the total number of blasts over a period of 12 months
120	0%

Ground Vibration Impact Assessment Criteria

10. The Applicant shall ensure that the ground vibration level from blasting at the development does not exceed the criteria in Table 7.

Table 7: Ground vibration impact assessment criteria

Receiver	Peak particle velocity (mm/s)	Allowable exceedance
Residence on privately-owned land	5	5% of the total number of blasts over a period of 12 months
	10	0%
St Clements Church	2	5% of the total number of blasts over a period of 12 months
	5	0%
Main Northern Railway culverts and bridges	25	0%
Electricity transmission poles	50	0%

Note: Vibration shall be measured in accordance with applicable guidelines, including DECC's Assessing Vibration: A Technical Guideline (2006).

However, if the Applicant has a written negotiated agreement with the relevant service provider, and a copy of this agreement has been forwarded to the Department and DECC, then the Applicant may exceed the criteria for the Main Northern Railway culverts and bridges and electricity transmission poles in accordance with the negotiated agreement.

Blasting Hours

11. The Applicant shall only carry out blasting on site between 9am and 5pm Monday to Saturday (EST) inclusive, and 9am to 6pm Monday to Saturday (DST) inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the DECC.

Blasting Frequency

12. The Applicant may carry out a maximum of:
- (a) 2 blasts a day; and
 - (b) 5 blasts a week, averaged over a 12 month period.

Operating Conditions

13. During mining operations on site, the Applicant shall implement best blasting practice to:
- (a) protect the safety of people, property, public infrastructure, and livestock;
 - (b) minimise the dust and fume emissions from blasting at the development, to the satisfaction of the Director-General.

14. The Applicant shall not undertake blasting within 500 metres of any privately-owned land or any land not owned by the Applicant, unless suitable arrangements have been made with the landowner and any tenants to minimise the risk of flyrock-related impact to the property to the satisfaction of the Director-General.

Road Closure

15. Prior to blasting within 500 metres of any public road, the Applicant shall prepare a Road Closure Management Plan for the development to the satisfaction of Council and DPI; and following approval, implement this plan to the satisfaction of Council and DPI.

Public Notice

16. During mining operations on site, the Applicant shall:
- (a) notify the landowner/occupier of any residence within 2 kilometres of the mining area who registers an interest in being notified about the blasting schedule at the mine;
 - (b) operate a Blasting Hotline, or alternate system agreed to by the Director-General, to enable the public to get up-to-date information on the blasting schedule at the development;
 - (c) advertise the blasting hotline number in a local newspaper at least 4 times each year, and
 - (d) publish an up-to-date blasting schedule on its website, to the satisfaction of the Director-General.

Property Inspections

17. At least 6 months prior to blasting within 2 kilometres of any privately-owned land, the Applicant shall advise applicable landowners that they are entitled to a structural property inspection.

If the Applicant receives a written request for a structural property inspection from the landowner, the Applicant shall within 3 months of receiving this request and prior to blasting within 2 kilometres of the property:

- (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to inspect the condition of any building or structure on the land, and recommend measures to mitigate any potential blasting impacts; and
- (b) give the landowner a copy of the property inspection report.

Property Investigations

18. If any landowner of privately-owned land within 2 kilometres of the mining area claims that buildings and/or structures on his/her land have been damaged as a result of blasting at the development, the Applicant shall within 3 months of receiving this claim:

- (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 Applicant shall repair the damages to the satisfaction of the Director-General.

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

If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 8).

Blast Monitoring Program

19. The Applicant shall prepare and implement a Blast Monitoring Program for the development to the satisfaction of the Director-General. This program must:
- (a) be prepared in consultation with the DECC;
 - (b) be submitted to the Director General for approval by the end of April 2008; and
 - (c) include a protocol for evaluating blasting impacts on, and demonstrating compliance with the blasting criteria in this consent for:
 - privately-owned residences and structures;
 - St Clements Church;
 - Main Northern Railway; and
 - electricity transmission lines.

AIR QUALITY

Impact Assessment Criteria

20. The Applicant shall ensure that the dust emissions generated by the development do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 8, 9, and 10 at any residence on privately-owned land, or on more than 25 percent of any privately-owned land.

Table 8: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m ³

Table 9: Short term impact assessment criterion for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m ³

Table 10: Long term impact assessment criteria for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

Note: Deposited dust is 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.

Land Acquisition Criteria

21. If the dust emissions generated by the development exceed the criteria in Tables 11, 12, and 13 at any residence on privately-owned land, or on more than 25 percent of any privately-owned land, the Applicant shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 9-11 of schedule 4.

Table 11: Long term land acquisition criteria for particulate matter

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m ³

Table 12: Short term land acquisition criteria for particulate matter

Pollutant	Averaging period	Criterion	Percentile¹	Basis
Particulate matter < 10 µm (PM ₁₀)	24 hour	150 µg/m ³	99 ²	Total ³
Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m ³	98.6	Increment ⁴

¹Based on the number of block 24 hour averages in an annual period.

²Excludes 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 DECC.

³Background PM₁₀ concentrations due to all other sources plus the incremental increase in PM₁₀ concentrations due to the mine alone.

⁴Incremental increase in PM₁₀ concentrations due to the mine alone.

Table 13: Long term land acquisition criteria for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

Note: Deposited dust is 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.

Operating Conditions

22. The Applicant shall:
- ensure any visible air pollution generated by the development is assessed regularly, and that mining operations are relocated, modified, and/or stopped as required to minimise air quality impacts on privately-owned land;
 - ensure that the real-time air quality monitoring and meteorological monitoring data are assessed regularly, and that mining operations are relocated, modified and/or stopped as required to ensure compliance with the relevant air quality criteria; and
 - implement all practicable measures to minimise the off-site odour and fume emissions generated by any spontaneous combustion on site,
- to the satisfaction of the Director-General.

Monitoring

23. The Applicant shall prepare and implement an Air Quality Monitoring Program for the development to the satisfaction of the Director-General. This program must:
- be prepared in consultation with DECC;
 - be submitted to the Director-General for approval by the end of April 2008; and
 - include:
 - a combination of real-time monitors, high volume samplers and dust deposition gauges to monitor the dust emissions of the development; and
 - an air quality monitoring protocol for evaluating compliance with the air quality impact assessment and land acquisition criteria in this consent.

METEOROLOGICAL MONITORING

24. During the life of the development, the Applicant 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.

SURFACE AND GROUND WATER

Discharge Limits

25. The Applicant shall only discharge mine water from the site in accordance with the provisions of an EPL or the *Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002*.

Bettys Creek and Swamp Creek Diversions

26. The Applicant shall design, construct, maintain, and rehabilitate the proposed diversion of Bettys Creek and Swamp Creek, to the satisfaction of the Director-General.
27. Within one month of completing the construction of the Bettys Creek and Swamp Creek diversions, the Applicant shall submit an as-executed report, certified by a practising registered engineer, to the Director-General and DWE.

28. Prior to destroying the original creek lines, the Applicant shall demonstrate that the Bettys Creek and Swamp Creek diversions are operating successfully, in consultation with DWE, and to the satisfaction of the Director-General.

Site Water Management Plan

29. The Applicant shall prepare and implement a Site Water Management Plan for the development to the satisfaction of the Director-General. This plan must:
- (a) be prepared in consultation with DECC and DWE by suitably qualified expert/s whose appointment/s have been approved by the Director-General;
 - (b) be submitted to the Director-General for approval by the end of April 2008; and
 - (c) include:
 - a Bettys Creek and Swamp Creek Diversion Plan/s;
 - a Site Water Balance;
 - an Erosion and Sediment Control Plan;
 - a Surface Water Management and Monitoring Plan;
 - a Ground Water Monitoring Program; and
 - a Surface and Ground Water Response Plan.

Note: The Department accepts that the initial Site Water Management Plan may not include the detailed plans for the proposed diversions of Bettys Creek and Swamp Creek. However, if this occurs, the Applicant will be required to seek approval from the Director-General for an alternative timetable for completion and approval of the diversion plan/s.

Bettys Creek and Swamp Creek Diversion Plan/s

30. The Bettys Creek and Swamp Creek Diversion Plan/s must include:
- (a) a vision statement for the creek relocation;
 - (b) an assessment of the water quality, ecological, hydrological and geomorphic baseline conditions in the creek;
 - (c) the detailed design specifications for the creek relocation;
 - (d) a construction program for the creek relocation, describing how the work would be staged, and integrated with mining operations;
 - (e) a revegetation program for the relocated creek using a range of suitable native species;
 - (f) water quality, ecological, hydrological and geomorphic performance and completion criteria for the creek relocation based on the assessment of baseline conditions; and
 - (g) a program to monitor and maintain the water quality, ecological, hydrological and geomorphic integrity of the creek relocation.

Site Water Balance

31. The Site Water Balance must:
- (a) include details of:
 - sources and security of water supply;
 - water use on site;
 - water management on site;
 - off-site water transfers; and
 - (b) investigate and describe measures to minimise water use by the development.

Erosion and Sediment Control

32. The Erosion and Sediment Control Plan must:
- (a) be consistent with the requirements of the Landcom's (2004) *Managing Urban Stormwater: Soils and Construction* manual;
 - (b) identify activities that could cause soil erosion and generate sediment;
 - (c) describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;
 - (d) describe the location, function, and capacity of erosion and sediment control structures; and
 - (e) describe what measures would be implemented to maintain these structures over time.

Surface Water Monitoring

33. The Surface Water Management and Monitoring Plan must include:
- (a) detailed baseline data on surface water flows and quality in creeks and other waterbodies that could potentially be affected by the development;
 - (b) surface water and stream health impact assessment criteria;
 - (c) a program to monitor surface water flows, quality and impacts on water users (upstream and downstream of the development in Bettys Creek, Swamp Creek and Bowmans Creek);

- (d) a program to assess stream health conditions in Bettys Creek, Swamp Creek and Bowmans Creek;
- (e) a program to monitor channel stability in Bettys Creek, Swamp Creek and Bowmans Creek; and
- (f) reporting procedures for the results of the monitoring program.

Groundwater Monitoring

34. The Groundwater Monitoring Program must include:
- (a) detailed baseline data, based on sound statistical analysis, to benchmark the pre-mining natural variation in groundwater levels, yield and quality (including privately-owned groundwater bores within the predicted drawdown impact zone);
 - (b) groundwater impact assessment criteria (including for monitoring bores);
 - (c) a program for accurately delineating the boundary of the Bettys Creek and Swamp Creek alluvial aquifers in any areas intersected by mining;
 - (d) a program to monitor:
 - impacts on the groundwater supply of potentially affected landowners;
 - impacts on the Bettys Creek and Swamp Creek alluvial aquifers;
 - connectivity and groundwater leakage to/from Bettys Creek and Swamp Creek following diversion;
 - impacts on groundwater dependent ecosystems and riparian vegetation;
 - the volume of ground water seeping into the open cut mine workings;
 - regional ground water levels and quality in the alluvial, coal seam, and overburden/interburden aquifers; and
 - the groundwater pressure response in the surrounding coal measures;
 - (e) procedures for the verification of the groundwater model; and
 - (f) reporting procedures for the results of the monitoring program and model verification.

Surface and Ground Water Response Plan

35. The Surface and Ground Water Response Plan must include:
- (a) a protocol for the investigation, notification and mitigation of any exceedances of the surface water, stream health and groundwater impact assessment criteria;
 - (b) measures to mitigate and/or compensate potentially affected landowners for the loss of surface water flows in Bettys Creek, Swamp Creek and Bowmans Creek downstream of the development;
 - (c) measures to minimise, prevent or offset groundwater leakage from the Bettys Creek and Swamp Creek alluvial aquifers;
 - (d) measures to mitigate any direct hydraulic connection between the backfilled open cuts and the Bettys Creek and Swamp Creek alluvium if the potential for adverse impacts is detected; and
 - (e) the procedures that would be followed if any unforeseen impacts are detected during the development.

REHABILITATION AND LANDSCAPE

Offset Strategy

36. The Applicant shall:
- (a) implement the Offset Strategy described in the EA and summarised in Table 14 (shown conceptually in Appendix 5); and
 - (b) make suitable arrangements to provide appropriate long term security for the offset area by April 2011,
- to the satisfaction of the Director-General.

Table 14: Offset Strategy

Offset Area	Minimum Size
Bettys Creek Habitat Management Area	170 ha

The Offset Strategy must contain specific measures to adequately offset the development's net impact on significant plant communities, including:

- Bulloak Forest;
- Swamp Oak Forest; and
- Box-Ironbark Woodland.

Rehabilitation

37. The Applicant shall progressively rehabilitate the site in a manner that is generally consistent with the

final landform set out in the EA (shown conceptually in Appendix 6) to the satisfaction of the DPI and the Director-General.

The final landform shall provide for at least 250 hectares of treed vegetation, in a manner generally consistent with that shown conceptually in Appendix 6.

New England Highway Tree Screens

38. By the end of October 2008, the Applicant shall plant additional trees along the New England Highway corridor to provide a tree screen for the development. These trees must be planted in consultation with Council and the relevant landowners, and then subsequently maintained to the satisfaction of the Director-General.

Note: If Council and/or the relevant landowners do not agree to the proposed plantings, then the Applicant is not required to undertake the plantings.

Landscape Management Plan

39. The Applicant shall prepare and implement a detailed Landscape Management Plan for the development to the satisfaction of the DPI and Director-General. This plan must:
- (a) be prepared in consultation with DECC, DWE and Council by suitably qualified expert/s whose appointment/s have been approved by the Director-General;
 - (b) be submitted to the Director-General for approval by the end of April 2008; and
 - (c) include a:
 - Rehabilitation and Offset Management Plan;
 - Final Void Management Plan; and
 - Mine Closure Plan.

Note: The Department accepts that the initial Landscape Management Plan may not include the detailed Final Void Management Plan and Mine Closure Plan. However, if this occurs, the Applicant will be required to seek approval from the Director-General for an alternative timetable for the completion and approval of the Final Void Management Plan and Mine Closure Plan.

Rehabilitation and Offset Management Plan

40. The Rehabilitation and Offset Management Plan must include:
- (a) the objectives for rehabilitation of the site and offset area;
 - (b) a detailed description of how the rehabilitation of the site and implementation of the Offset Strategy would be integrated with the rehabilitation and offset strategies of the Mt Owen, Ravensworth East and Ashton mines to ensure there is a comprehensive strategic framework for the restoration and enhancement of the landscape over time;
 - (c) a description of the short, medium, and long term measures that would be implemented to:
 - rehabilitate the site;
 - implement the Offset Strategy;
 - manage the remnant vegetation and habitat on the site and in the offset areas;
 - maximise effective linkages to the offset areas at Mt Owen, Ravensworth East and Ashton mines; and
 - implement the New England Highway tree screens;
 - (d) detailed performance and completion criteria for the rehabilitation of the site and implementation of the Offset Strategy and New England Highway tree screens;
 - (e) a detailed description of how the performance of the rehabilitation of the mine, the offset areas and the New England Highway tree screens would be monitored over time to achieve the stated objectives;
 - (f) a detailed description of what measures would be implemented over the next 3 years to rehabilitate the site, and implement both the Offset Strategy and tree screens along the New England Highway including the procedures to be implemented for:
 - progressively rehabilitating areas disturbed by mining;
 - implementing revegetation and regeneration within the disturbance areas and offset areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata;
 - reducing the visual impacts of the development;
 - protecting areas outside the disturbance areas;
 - rehabilitating creeks and drainage lines on the site, to ensure no net loss of stream length and aquatic habitat;
 - undertaking pre-clearance surveys;
 - managing impacts on fauna;
 - landscaping the site to minimise visual impacts;
 - conserving and reusing topsoil;
 - collecting and propagating seed for rehabilitation works;

- salvaging and reusing material from the site for habitat enhancement;
 - controlling weeds and feral pests;
 - controlling access;
 - bushfire management; and
 - managing any potential conflicts between the offset strategy and Aboriginal cultural heritage;
- (g) a description of the potential risks to successful rehabilitation and/or revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and
- (h) details of who is responsible for monitoring, reviewing, and implementing the plan.

Notes: Reference to "rehabilitation" in this consent includes all works associated with the rehabilitation and restoration of the site as described in the EA, and applies to all areas within the Mining Lease and Offset Strategy.

Final Void Management

41. The Final Void Management Plan must:
- (a) justify the final location and future use of the final void;
 - (b) incorporate design criteria and specifications for the final void based on verified groundwater modelling predictions and a re-assessment of post-mining groundwater equilibration;
 - (c) assess the potential interactions between creeks on the site and the final void; and
 - (d) describe what actions and measures would be implemented to:
 - minimise any potential adverse impacts associated with the final void; and
 - manage and monitor the potential impacts of the final void.

Mine Closure Plan

42. The Mine Closure Plan must:
- (a) define the objectives and criteria for mine closure;
 - (b) investigate options for the future use of the site, including the final void;
 - (c) investigate ways to minimise the adverse socio-economic effects associated with mine closure, including reduction in local employment levels;
 - (d) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the development; and
 - (e) describe how the performance of these measures would be monitored over time.

Conservation and Biodiversity Bond

43. Within 3 months of the approval of the Landscape Management Plan, the Applicant shall lodge a conservation and biodiversity bond with either the DPI or the Department to ensure that the Offset Strategy is implemented in accordance with the performance and completion criteria of the Landscape Management Plan. The sum of the bond shall be determined by:
- (a) calculating the full cost of implementing the Offset Strategy (Bettys Creek Habitat Management Area); and
 - (b) employing a suitably qualified rehabilitation expert or quantity surveyor to verify the calculated costs.

Notes:

- *If the Offset Strategy is completed to the satisfaction of the Director-General, the DPI or the Department will release the conservation bond.*
- *If the Offset Strategy is not completed to the satisfaction of the Director-General, all or part of the conservation bond will be used to ensure the satisfactory completion of the relevant works.*
- *The conservation bond may be incorporated into rehabilitation bonding arrangements under the Mining Act 1992.*

ABORIGINAL CULTURAL HERITAGE

Aboriginal Cultural Heritage Management Plan

44. The Applicant shall prepare and implement an Aboriginal Cultural Heritage Management Plan to the satisfaction of the Director-General. This plan must:
- (a) be prepared in consultation with DECC and the Aboriginal communities;
 - (b) be submitted to the Director-General for approval by the end of April 2008 and prior to the disturbance of any Aboriginal object or site; and
 - (c) include a:
 - management plan for all Aboriginal sites within the development disturbance area;
 - detailed description of the measures that would be implemented to protect Aboriginal sites outside the development disturbance area;

- description of the measures that would be implemented if any new Aboriginal objects or skeletal remains are discovered during the development; and
- protocol for the ongoing consultation and involvement of the Aboriginal communities in the conservation and management of Aboriginal cultural heritage on the site.

HERITAGE

45. The Applicant shall prepare an archival record of the heritage items listed in the table in Appendix 7, prior to any activity associated with the development that may disturb these sites, in consultation with, and in accordance with the requirements of, the NSW Heritage Office, and to the satisfaction of the Director-General.

TRANSPORT

Monitoring of Coal Transport

46. The Applicant shall keep records of the amount of coal transported from the site each year, and include these records in the AEMR.

Traffic Management

47. The Applicant shall construct the Hebden Road/Site Access Road intersection to the satisfaction of Council, by the end of September 2008.
48. The Applicant shall prepare (and subsequently implement) a construction traffic management plan for the development, to the satisfaction of Council, prior to re-commencing construction activities that require access from Hebden Road to the site.
49. The Applicant shall review, and if necessary upgrade the New England Highway/Hebden Road intersection to provide:
 - (a) street lighting in accordance with the relevant Australian Standards; and
 - (b) road shoulders that comply with the RTA's Road Design Guide, to the satisfaction of the RTA, by the end of December 2008.

VISUAL

50. The Applicant shall:
 - (a) ensure that all external lighting associated with the development complies with *Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*,
 - (b) take all practicable measures to mitigate off-site lighting impacts from the development; and
 - (c) minimise the visual impacts of the development, to the satisfaction of the Director-General.

GREENHOUSE & ENERGY EFFICIENCY

51. The Applicant shall prepare and implement a Greenhouse and Energy Efficiency Plan for the development to the satisfaction of the Director-General. This plan must:
 - (a) be prepared generally in accordance with the *Guidelines for Energy Savings Action Plans* (DEUS 2005, or its latest version);
 - (b) be submitted to the Director-General for approval by the end of July 2008;
 - (c) include a program to monitor greenhouse gas emissions and energy use generated by the development;
 - (d) include a framework for investigating and implementing measures to reduce greenhouse gas emissions and energy use at the site; and
 - (e) describe how the performance of these measures would be monitored over time.

WASTE

52. The Applicant shall:
 - (a) monitor the amount of waste generated by the development;
 - (b) investigate ways to minimise waste generated by the development;
 - (c) implement reasonable and feasible measures to minimise waste generated by the development;
 - (d) ensure irrigation of treated wastewater is undertaken in accordance with DECC's *Environmental Guideline for the Utilisation of Treated Effluent*; and
 - (e) report on waste management and minimisation in the AEMR, to the satisfaction of the Director-General.

SCHEDULE 4 ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS

1. By the end of April 2008, the Applicant shall notify the landowners of the land listed in Table 1 in writing that they have the right to require the Applicant to acquire their land at any stage during the development.
2. If the results of monitoring required in schedule 3 identify that impacts generated by the development are greater than the impact assessment criteria in schedule 3, except where this is predicted in the EA, and except where a negotiated agreement has been entered into in relation to that impact, then the Applicant shall notify the Director-General and the affected landowners and/or existing or future tenants (including tenants of mine owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the development is complying with the criteria in schedule 3.
3. The Applicant shall develop a brochure to advise landowners and/or existing or future tenants (including tenants of mine owned properties) of the possible health and amenity impacts associated with exposure to particulate matter, to the satisfaction of the Director-General. The brochure shall be prepared in consultation with NSW Health, and be submitted to the Director-General within 6 months of the date of this consent.

The Applicant shall review relevant human health studies and update this brochure every 3 years, to the satisfaction of the Director-General.

The Applicant shall provide this brochure (and associated updates) to all landowners and/or existing or future tenants (including tenants of mine owned properties) of properties where:

- (a) the predictions in the EA identify that the dust emissions generated by the development are likely to be greater than the air quality land acquisition criteria in condition 21 of schedule 3; and
- (b) monitoring results identify that the mine is exceeding the air quality land acquisition criteria in condition 21 of schedule 3.

INDEPENDENT REVIEW

4. If a landowner considers the development to be exceeding the impact assessment criteria in schedule 3, then he/she may ask the Director-General in writing for an independent review of the impacts of the development on his/her land.

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

- (a) consult with the landowner to determine his/her concerns;
 - (b) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to conduct monitoring on the land, to:
 - determine whether the development is complying with the relevant impact assessment criteria in schedule 3; and
 - identify the source(s) and scale of any impact on the land, and the development's contribution to this impact; and
 - (c) give the Director-General and landowner a copy of the independent review.
5. If the independent review determines that the development is complying with the relevant impact assessment criteria in schedule 3, then the Applicant may discontinue the independent review with the approval of the Director-General.
 6. If the independent review determines that the development is not complying with the relevant impact assessment criteria in schedule 3, and that the development is primarily responsible for this non-compliance, then the Applicant shall:
 - (a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the development complies with the relevant criteria; and
 - (b) conduct further monitoring to determine whether these measures ensure compliance.

If the additional monitoring referred to above subsequently determines that the development is complying with the relevant criteria in schedule 3, or the Applicant and landowner enter into a negotiated agreement to allow these exceedances, then the Applicant may discontinue the independent review with the approval of the Director-General.

7. 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 the Applicant shall, together with the relevant mine/s:
- (a) take all reasonable and feasible measures, in consultation with the landowner, to ensure that the relevant criteria are complied with; and
 - (b) conduct further monitoring to determine whether these measures ensure compliance; or
 - (c) secure a written agreement with the landowner and other relevant mines to allow exceedances of the criteria in schedule 3,
- to the satisfaction of the Director-General.

If the additional monitoring referred to above subsequently determines that the developments are complying with the relevant criteria in schedule 3, then the Applicant may discontinue the independent review with the approval of the Director-General.

8. If the landowner disputes the results of the independent review, either the Applicant or the landowner may refer the matter to the Director-General for resolution.

If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process.

LAND ACQUISITION

9. Within 3 months of receiving a written request from a landowner with acquisition rights, the Applicant 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 development the subject of the development application, 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 the 'additional noise mitigation measures' in condition 6 of schedule 3;
 - (b) the reasonable costs associated with:
 - relocating within the Singleton local government area, or to any other local government area determined by the Director-General;
 - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is required; and
 - (c) reasonable compensation for any disturbance caused by the land acquisition process.

However, if at the end of this period, the Applicant 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 shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer or Fellow of the Institute, to consider submissions from both parties, and determine a fair and reasonable acquisition price for the land, and/or terms upon which the land is to be acquired.

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

If the landowner refuses to accept this offer within 6 months of the date of the Applicant's offer, the Applicant's obligations to acquire the land shall cease, unless otherwise agreed by the Director-General.

10. The Applicant shall bear the costs of any valuation or survey assessment requested by the independent valuer, or the Director-General, and the costs of determination referred above.
11. If the Applicant and landowner agree that only part of the land shall be acquired, then the Applicant shall pay all reasonable costs associated with obtaining Council consent for any plan of subdivision (where permissible), and registration of the plan at the Office of the Registrar-General.

SCHEDULE 5
ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING

ENVIRONMENTAL MANAGEMENT STRATEGY

1. The Applicant shall prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Director-General. This strategy must be submitted to the Director-General by the end of April 2008, and:
 - (a) provide the strategic framework for environmental management of the development;
 - (b) identify the statutory requirements that apply to the development;
 - (c) describe in general how the environmental performance of the development would be monitored and managed;
 - (d) describe the procedures that would be implemented to:
 - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
 - receive, handle, respond to, and record complaints;
 - resolve any disputes that may arise during the course of the development;
 - respond to any non-compliance;
 - manage cumulative impacts; and
 - respond to emergencies; and
 - (e) describe the role, responsibility, authority, and accountability of all the key personnel involved in the environmental management of the development.

ENVIRONMENTAL MONITORING PROGRAM

2. The Applicant shall prepare and implement an Environmental Monitoring Program for the development to the satisfaction of the Director-General. The program must consolidate the various monitoring requirements in schedule 3 of this approval into a single document, and be submitted to the Director-General concurrently with the submission of the relevant monitoring programs/plans.

REPORTING

Incident Reporting

3. Within 24 hours of detecting an exceedance of the limits/performance criteria in this consent or the occurrence of an incident that causes (or may cause) material harm to the environment, the Applicant shall notify the Department and other relevant agencies of the exceedance/incident.
4. Within 6 days of notifying the Department and other relevant agencies of an exceedance/incident, the Applicant shall provide the Department and these agencies with a written report that:
 - (a) describes the date, time, and nature of the exceedance/incident;
 - (b) identifies the cause (or likely cause) of the exceedance/incident;
 - (c) describes what action has been taken to date; and
 - (d) describes the proposed measures to address the exceedance/incident.

Annual Reporting

5. By the end of December 2009, and annually thereafter, the Applicant shall submit an AEMR to the Director-General and relevant agencies. This report must:
 - (a) identify the standards and performance measures that apply to the development;
 - (b) describe the works carried out in the last 12 months;
 - (c) describe the works that will be carried out in the next 12 months;
 - (d) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
 - (e) include a summary of the monitoring results for the development during the past year;
 - (f) include an analysis of these monitoring results against the relevant:
 - impact assessment criteria/limits;
 - monitoring results from previous years; and
 - predictions in the EA;
 - (g) identify any trends in the monitoring results over the life of the development;
 - (h) identify any non-compliance during the previous year; and
 - (i) describe what actions were, or are being, taken to ensure compliance.

INDEPENDENT ENVIRONMENTAL AUDIT

6. By the end of December 2010, and every 3 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. 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 development, and its effects on the surrounding environment;
 - (d) assess whether the development is complying with the relevant standards, performance measures, and statutory requirements in this consent and any associated EPL or mining lease;
 - (e) review the adequacy of any strategy/plan/program required under this consent; and, if necessary,
 - (f) recommend measures or actions to improve the environmental performance of the development, and/or any strategy/plan/program required under this consent.

Note: This audit team should be led by a suitably qualified auditor, and include experts in the field of noise, air quality and mine rehabilitation.

7. Within 6 weeks of completing this audit, or as otherwise agreed by the Director-General, the Applicant shall submit a copy of the audit report to the Director-General with a response to any recommendations contained in the audit report.
8. Within 3 months of submitting the audit report to the Director-General, the Applicant shall review and if necessary revise the:
- (a) strategies/plans/programs required under this consent; and
 - (b) Conservation and Biodiversity Conservation Bond,
- to the satisfaction of the Director-General.

COMMUNITY CONSULTATIVE COMMITTEE

9. By the end of April 2008, the Applicant shall establish a CCC for the development. This CCC must be established and operated in accordance with the *Guideline for Establishing and Operating Community Consultative Committees for Mining Developments*, and to the satisfaction of the Director-General.

Note: The CCC may be combined with similar committees established for the adjoining Mt Owen and Ravensworth East mines.

ACCESS TO INFORMATION

10. Within 3 months of the approval of any strategy/plan/program required under this consent (or any subsequent revision of these strategies/plans/programs), or the completion of the audits or AEMRs required under this consent, the Applicant shall:
- (a) provide a copy of the relevant document/s to the relevant agencies and CCC; and
 - (b) put a copy of the relevant document/s on the Applicant's website.
11. During the development, the Applicant shall:
- (a) include a copy of this consent, as may be modified from time to time, on its website;
 - (b) provide a full summary of monitoring results required under this consent on its website; and
 - (c) update these results on a regular basis (at least every 3 months).
-

**APPENDIX 1
SCHEDULE OF LAND**

Parcels within Glendell Mine Site			
<i>Lot</i>	<i>DP</i>	<i>Parish</i>	<i>County</i>
2	6842	Vane	Durham
2A	6842	Vane	Durham
11	592404	Liddell	Durham
A	380246	Liddell	Durham
71	625171	Vane	Durham
58	752499	Vane	Durham
1	865784	Vane	Durham
Pt Lot 6	859544	Vane	Durham
8	6830	Vane	Durham
1	940619	Vane	Durham
2	859544	Vane	Durham
5	859544	Vane	Durham
3	859544	Vane	Durham
2	865784	Vane	Durham
5	1077004	Vane	Durham
6	1077004	Vane	Durham
7	1077004	Vane	Durham
3	662944	Vane	Durham
Hebden Road Reserve		Vane	Durham
Various Crown Road Reserves		Vane	Durham
Ravensworth East Crushing Station and Conveyor Parcels			
9	6842	Liddell	Durham
352	867083	Liddell	Durham
25	841160	Liddell	Durham
22	841165	Liddell	Durham
180	858299	Liddell	Durham
1	135026	Liddell	Durham

APPENDIX 2 DEVELOPMENT LAYOUT PLAN



Source: Glendell Mine Owners (GMO).

Scale: 0 0.5 1.0 1.5 km

Legend

- Glendell Mine Site
- Proposed Infrastructure Area
- Proposed Overburden Placement Area
- Proposed Mining Area
- Proposed Infrastructure Area
- Link Pipeline
- Existing Water Pipeline
- Creek Diversion
- Creek

FIGURE 1.5

Overview of Proposed Operations

APPENDIX 3 STATEMENT OF COMMITMENTS

Production and Life of Operation

- 1.1.1 A Mining Operations Plan (MOP) for the modified Glendell operations will be developed and submitted for approval of the NSW DPI, prior to the commencement of mining operations.

Coal Processing and Transportation

- 1.2.1 All coal produced by the proposed Glendell operations will be transported by haul road to the Mt Owen Complex for processing in the Mt Owen Coal Handling and Preparation Plant (CHPP) or the Ravensworth East Mine crushing station.
- 1.2.2 Product coal from Glendell Mine will be transported:
- by rail via the approved Mt Owen rail load out facilities, Mt Owen rail loop and Main Northern Railway; and
 - up to 1 Mtpa will be transported to domestic power stations via the approved Ravensworth East mine infrastructure.

Rejects and Tailings Management

- 1.3.1 All rejects and tailings produced from the processing of coal produced by the proposed Glendell Mine operations will be incorporated into the Mt Owen Complex life of mine rejects and tailings management strategy.

Air Quality

Air Quality Controls

- 1.4.1 Xstrata Mt Owen will minimise areas disturbed by mining activities and undertake prompt rehabilitation of disturbed areas following completion of mining.
- 1.4.2 Xstrata Mt Owen will undertake watering road surfaces, including haul roads, and hardstand areas using water carts, where required.
- 1.4.3 Xstrata Mt Owen will continue monitoring of meteorological conditions and consideration of weather data in the timing of blasts to minimise the impacts of blast generated dust, particularly on residents to the south and south-east of the project.
- 1.4.4 Ongoing use of an alarm generated for elevated dust levels from the Mt Owen Complex continuous PM₁₀ monitoring network and notification of operational personnel to review the ability to restrict dumping where practical on exposed faces during periods of high wind.
- 1.4.5 Expansion of the existing dust monitoring network for the Mt Owen Complex to include additional continuous PM₁₀ monitoring sites within the Camberwell Village area.
- 1.4.6 Provision of in-pit dumping locations for periods of high wind, where practicable.
- 1.4.7 Restricting vehicle movements to formed and watered roads, particularly during periods of potentially high dust generation.
- 1.4.8 Use of adequate stemming in blast holes.

Greenhouse and Energy Management

- 1.5.1 Xstrata Mt Owen will assess the viability of the following approaches to improving energy efficiency and reducing greenhouse emissions from the proposed Glendell operations:
- use of energy management systems; and
 - seeking continuous improvement in energy efficiency in the mining fleet, stationary equipment, mining processes and coal preparation.

Xstrata Mt Owen will continue to assess and implement energy and greenhouse management initiatives during the project design, operation and decommissioning.

Noise

Noise Mitigation Measures

The following noise control measures will be employed throughout the life of the project unless otherwise agreed in writing by the Department.

- 1.6.1 A progressive equipment replacement program that seeks to incorporate best practice noise attenuation on mining equipment.
- 1.6.2 Ongoing use of an alarm generated for elevated noise levels from the Mt Owen Complex continuous noise monitoring network and notification of operational personnel to review the ability to modify operations where practical during periods of adverse weather conditions.
- 1.6.3 Design of the out of pit dumping sequence to allow for mining equipment to dump in higher exposed areas in the day time and within protected lower areas during night time periods, where practicable during adverse weather conditions.
- 1.6.4 The use of a continuous noise monitoring system to assist with managing operational noise performance and determine further noise controls, as necessary.
- 1.6.5 Xstrata Mt Owen will amend the Mt Owen Complex Noise Management and Monitoring Plans and Protocols to include provisions for the management and monitoring of noise emissions from proposed Glendell operations.
- 1.6.6 Xstrata Mt Owen will investigate reported exceedences of relevant project specific noise criteria at private residences on a case by case basis. This includes the monitoring of noise emissions at a particular receiver for comparison with the predicted cumulative noise exceedance probabilities outlined in the noise impact assessment. This approach is consistent with the existing noise management and monitoring processes at the Mt Owen Complex.
- 1.6.7 Where it is established that the relevant project specific noise criteria have been exceeded by activities from Glendell, Xstrata Mt Owen will investigate additional noise mitigation strategies in consultation with the landholder.

Noise Monitoring

- 1.7.1 Xstrata Mt Owen will continue to implement the noise monitoring network currently in place for the Mt Owen Complex. Xstrata Mt Owen will continue with the ongoing operation of three continuous noise monitors within the Glennies Creek and Middle Falbrook areas.
- 1.7.2 Xstrata Mt Owen proposes to install a further two continuous noise monitors, one reference monitor located between Glendell Mine and Ashton Mine and one within the Camberwell Village area.

Blast and Vibration

Blasting in Proximity to Infrastructure

- 1.8.1 Xstrata Mt Owen will undertake further consultation with ARTC, including entering into an agreement to cover blasting practices in proximity to the Main Northern Railway, prior to mining being undertaken within 500 metres of the Main Northern Railway.
- 1.8.2 Xstrata Mt Owen will undertake further consultation with Energy Australia prior to undertaking detailed design of blasts in proximity to the 132 kV transmission line within the Glendell Mine site.
- 1.8.3 Xstrata Mt Owen will undertake further consultation with surrounding mining companies to seek to establish blasting protocols which minimise potential cumulative impacts of blasting practices.

Blast Controls

Other blast controls will include:

- 1.9.1 designing and undertaking blasts to ensure that vibration and airblast limits are met, including consideration of wind speed and direction prior to blasting to minimise impacts on neighbours;
- 1.9.2 design blasts so that predicted vibration levels at the Camberwell Church are less than 2 mm/s;

- 1.9.3 detailed monitoring of blasts over the life of the mine to inform the detailed design of blasts and modification of blast designs as necessary;
- 1.9.4 training all relevant personnel on environmental obligations in relation to blasting controls;
- 1.9.5 monitoring blasts at the nearest non mine-owned residence and Camberwell Church to verify whether vibration and airblast limits are met;
- 1.9.6 documentation of the date, location of blast holes and quantity of explosive used each day; and
- 1.9.7 periodic review of blast management procedures to evaluate performance and identify corrective action, if required.

Water Management

Xstrata Mt Owen has committed to the implementation of the following in relation to the management of water resources.

- 1.10.1 Design surface water controls to ensure that clean runoff is separated from runoff within disturbed mining and infrastructure areas. Design sediment and erosion controls to ensure any runoff from disturbed areas is appropriately treated.
- 1.10.2 The proposed diversions of Swamp and Bettys Creeks will be designed and constructed in accordance with the conceptual designs developed in the water resources assessment.
- 1.10.3 Xstrata Mt Owen will install cut off embankments along Bettys Creek to restrict alluvium inflows into the proposed pit area in accordance with the conceptual design developed in the water resources assessment.
- 1.10.4 Xstrata Mt Owen will prepare a Groundwater Management Plan to detail the monitoring and management commitments relating to the Swamp Creek alluvial system, prior to mining occurring within this alluvial area.
- 1.10.5 Xstrata Mt Owen will continue the groundwater monitoring at the existing groundwater monitoring locations within the alluvium of Swamp and Bettys Creeks, aside from monitoring location NPz14 which will be impacted by the proposed Glendell operations.
- 1.10.6 If groundwater monitoring indicates it is required, a barrier cut off wall within the alluvium associated with Swamp Creek will be constructed to limit groundwater seepage into the mine.
- 1.10.7 Xstrata Mt Owen will extend its existing surface water monitoring program to include surface water monitoring to be undertaken at Glendell, as follows:
 - two additional surface water monitoring locations on Bowmans Creek upstream and downstream of the confluence with Swamp and Bettys Creeks;
 - two additional sites on Swamp Creek upstream and downstream of the proposed open cut pit; and
 - two additional sites on Bettys Creek upstream and downstream of the open cut pit.

Flora and Fauna Management and Site Rehabilitation

- 1.11.1 Xstrata Mt Owen will implement a Rehabilitation Strategy that aims to create a stable final landform that is dominated by pastures with a minimum of 30 per cent native tree lots and corridors for the purpose of stock shade and shelter, and habitat restoration.
- 1.11.2 The specific rehabilitation strategies to be implemented at the Glendell Mine will be detailed within a revised Mining Operations Plan and will be consistent with the rehabilitation practices employed at the Mt Owen Complex, where relevant.
- 1.11.3 Xstrata Mt Owen will establish a Habitat Management Area in the south-eastern extent of Glendell Mine site. Existing vegetation within the Habitat Management Area will be augmented through protection, regeneration and revegetation practices. Specific vegetation augmentation techniques will be outlined in a Biodiversity and Land Management Plan developed for the Glendell Mine site.
- 1.11.4 Xstrata Mt Owen will develop and implement a Biodiversity and Land Management Plan for Glendell Mine specifying ecological management and monitoring measures consistent with the principles of the Mt Owen Complex Flora and Fauna Management Plan, where relevant.

- 1.11.5 Xstrata Mt Owen will obtain approval from the DPI for any final landform design that exceeds 10 degrees.

Heritage

Aboriginal Cultural Heritage Management Plan

- 1.12.1 Within 12 months of granting of the modified consent, Xstrata Mt Owen will complete (and following approval implement) an Aboriginal Cultural Heritage Management Plan (ACHMP), in consultation with DECC and relevant Aboriginal stakeholders, and will incorporate the relevant outcomes of this approval. The plan will include provisions for the conservation of the seven remaining registered Aboriginal sites within the Glendell Mine site and for the management of the Bettys, Swamp and Bowmans Creek areas that fall outside the Proposed Disturbance Area which despite being salvaged, still retain Aboriginal and archaeological values that require protection. Specific initiatives under the plan will include implementation of a Management Committee composed of the Xstrata Mt Owen Environmental and Community Officer and the Mine Management and at least three representatives of the Aboriginal stakeholder groups. The Management Committee will also have access to a qualified Archaeologist to assist with issues as required. The Management Committee will have the responsibility of strategic overview and input during the implementation of the following:
- the formulation of an Aboriginal cultural heritage awareness training package to be incorporated into the mine and contractor induction process;
 - fencing of remaining sites and sensitive areas outside the Proposed Disturbance Area to protect them from further disturbance. The fencing will be undertaken in accordance with the specific requirements outlined in the ACHMP;
 - annual monitoring of the remaining sites and sensitive areas remaining within the Glendell Mine site by representatives of the Management Committee to monitor ongoing protection; and
 - developing management procedures for control of:
 - feral animals, livestock and noxious and pest weeds;
 - erosion;
 - bushfire hazard; and
 - any other environmental management strategies or procedures which have the potential to affect the *in situ* management of sites or sensitive areas outlined in the ACHMP.

Historical Heritage

- 1.13.1 Xstrata Mt Owen will commission archival recording of sites identified within the Glendell Mine site by a qualified heritage consultant to NSW Heritage Office's standards of local significance prior to the commencement of mining.
- 1.13.2 Install fencing to protect remaining sites (Items 4a to 4d and Item 5) to manage these sites *in situ*.
- 1.13.3 Xstrata Mt Owen will submit an application for exemption to the *Heritage Act 1977* to the NSW Heritage Office for relevant items within the Glendell Mine site prior to mining commencing.

Traffic and Transport

- 1.14.1 Xstrata Mt Owen will review the adequacy of street lighting at the intersection of the New England Highway and Hebden Road in consultation with the RTA.
- 1.14.2 The intersection of Hebden Road and the proposed mine access road will be relocated approximately 800 metres north along Hebden Road from the approved mine access road to provide improved sight distances and will be a Type B rural layout in accordance with Austroads guidelines.
- 1.14.3 Xstrata Mt Owen will obtain a Section 138 approval under the *Roads Act 1993*, from Singleton Council, prior to the conduct of these works on Hebden Road.

Visual Controls

Vegetative Screenings

- 1.15.1 Screening plantings in strategically located positions to limit views into the Glendell mining area from the New England Highway will be maintained.

Rehabilitation and Final Landform

- 1.16.1 Shaping, stabilisation and rehabilitation of the out of pit overburden emplacement area will be undertaken as soon as practicable as part of progressive mining to minimise the impact of the proposed Glendell operations on the visual amenity of the surrounding area.

Operational Controls

- 1.17.1 Ensure that all external lighting associated with the project complies with *Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*; and
- 1.17.2 Xstrata Mt Owen will aim to minimise night lighting impacts on surrounding land owners by ensuring, where practicable, that lighting plants are positioned such that light is directed towards work areas and not towards private residences.

General Environmental Management, Monitoring, Auditing and Reporting

- 1.18.1 Environmental management of Glendell Mine will be integrated into an updated Mt Owen Complex environmental management strategy and environmental monitoring program.
- 1.18.2 Xstrata Mt Owen will employ a suitably qualified environmental officer with the responsibility of coordinating environmental management practices of the modified Glendell operations

APPENDIX 4 LANDOWNER/RECEIVER LOCATION PLANS

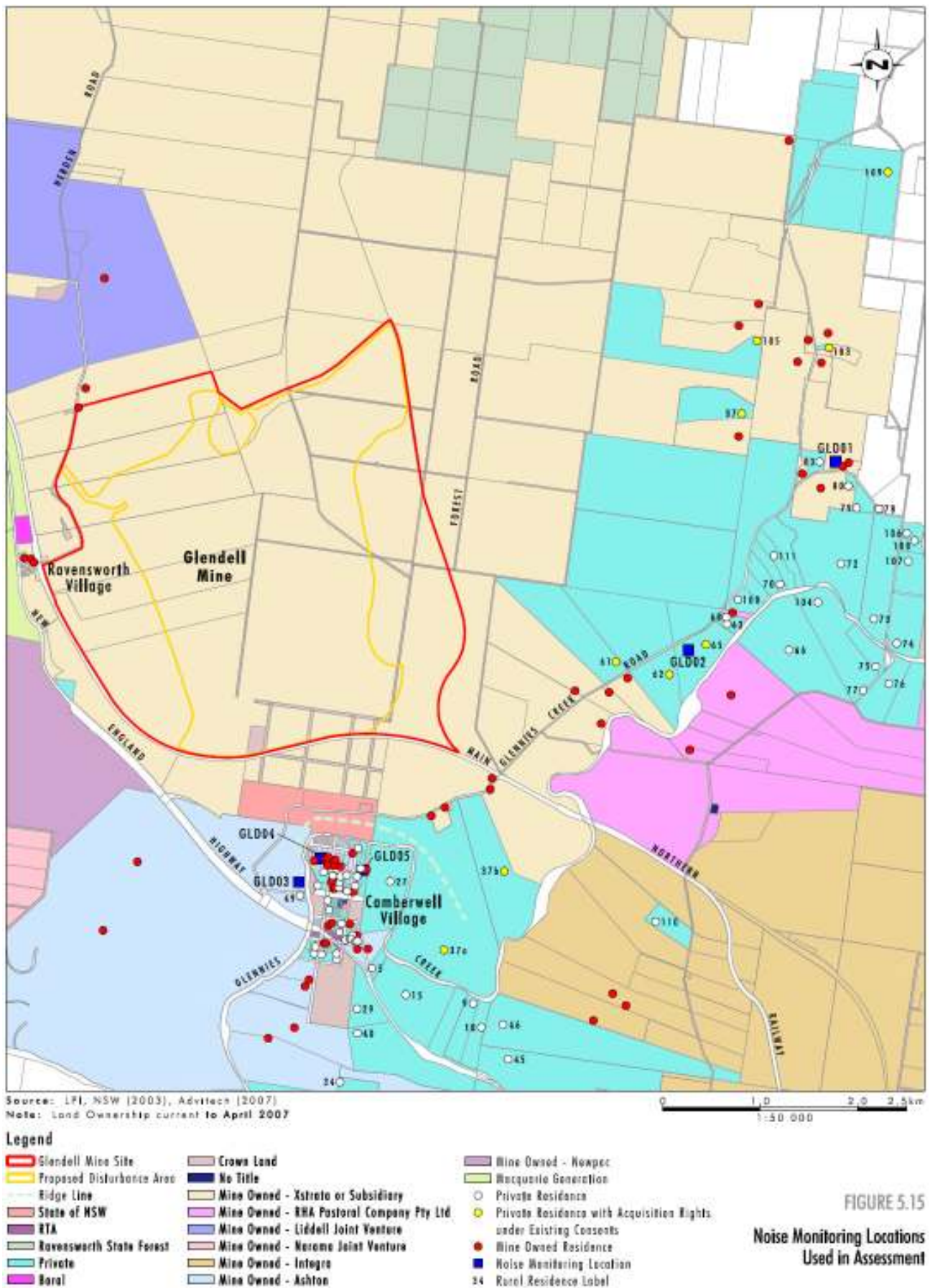
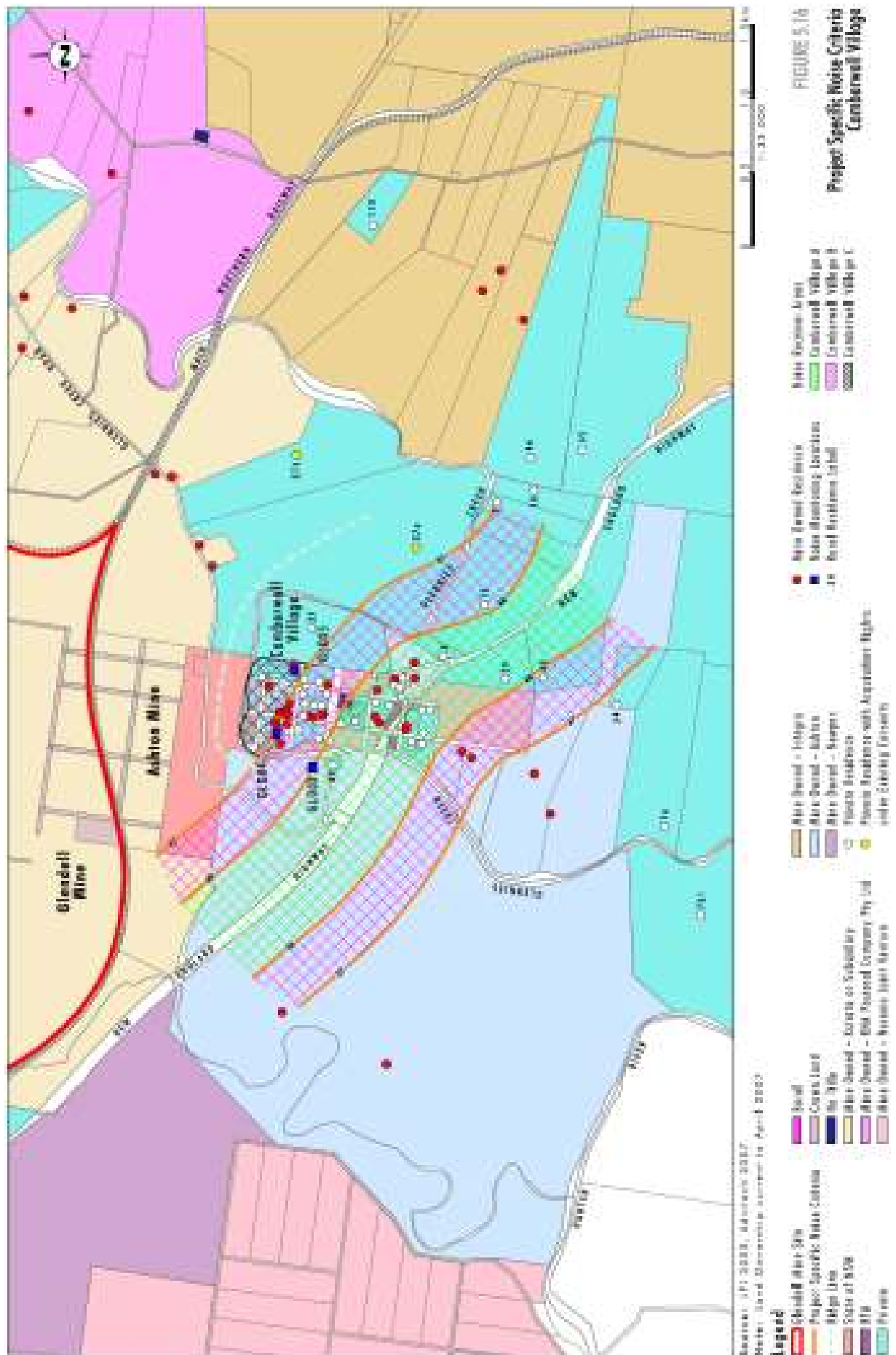
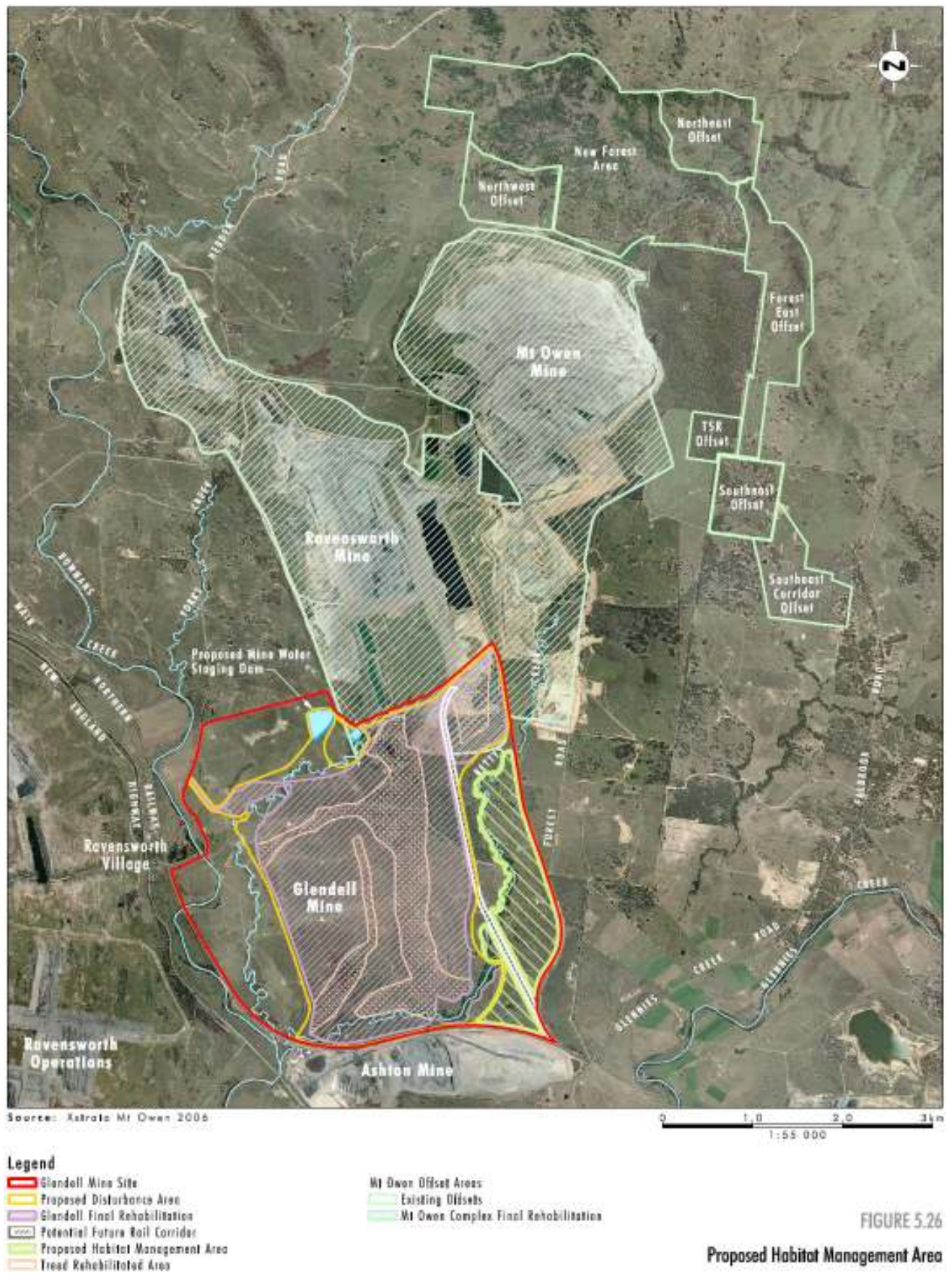


FIGURE 5.15
Noise Monitoring Locations
Used in Assessment



APPENDIX 5 OFFSET STRATEGY PLAN



APPENDIX 6 CONCEPTUAL REHABILITATION PLAN

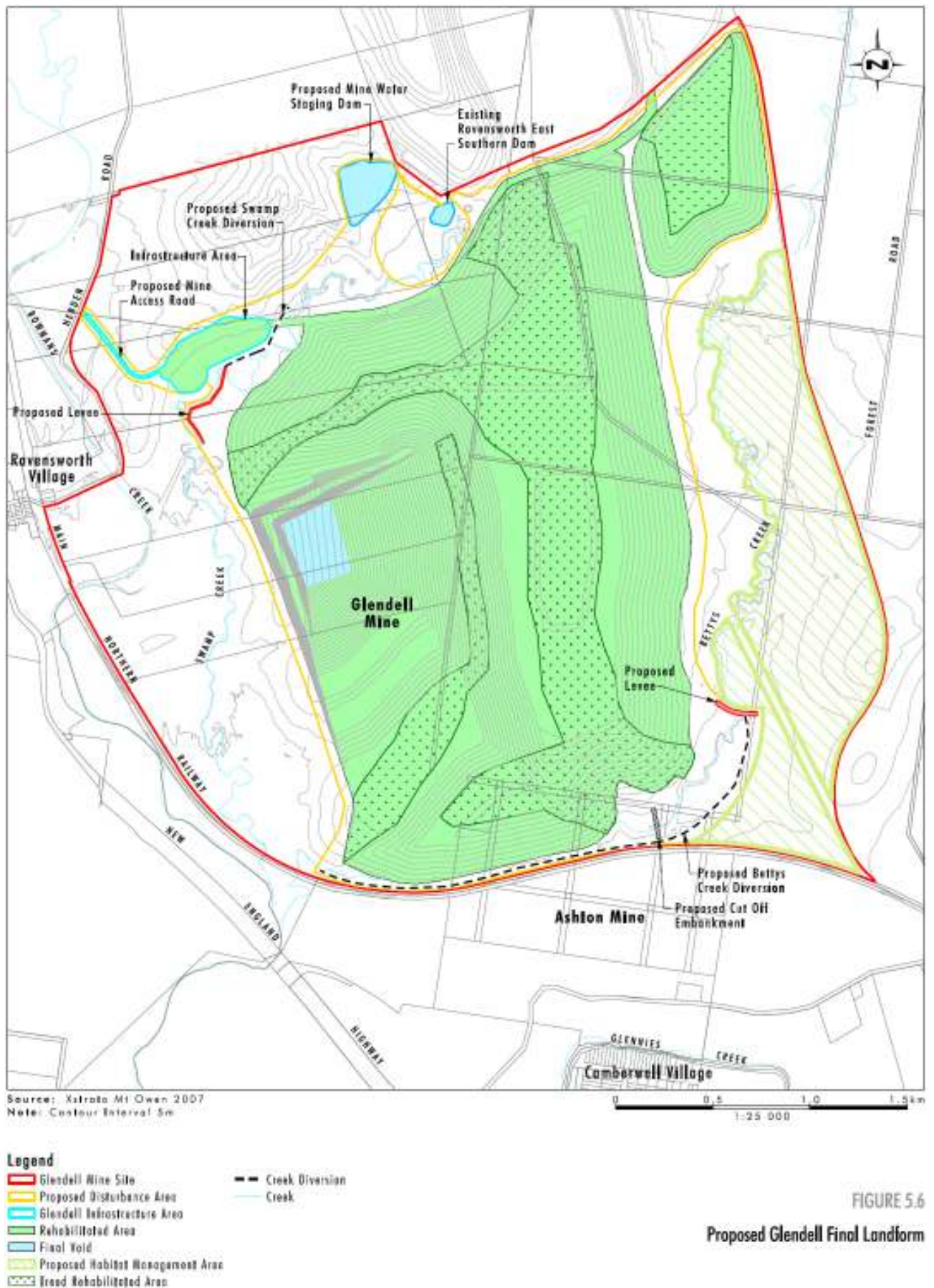


FIGURE 5.6
Proposed Glendell Final Landform

**APPENDIX 7
HERITAGE ITEMS FOR ARCHIVAL RECORDING**

Item ID	Complex	Description
1	-	Wooden bridge across Swamp Creek to the west of the former Marali homestead site
2	-	Tree stump bearing surveyors mark
3	-	Cattle yard remains
4a to 4d	Unidentified Potential Dairy Site	Sandstone and conglomerate concrete footings (items 4a & 4b); mortar lined drain/gutter (item 4c); machine made and sandstock wire cut bricks (item 4d)
5	-	Corduroy road remains
6a to 6l	Unidentified Ruined Homestead	Peppercorn trees and footings (item 6a); house footings (item 6b); bricks (item 6c); footings of associated structures (item 6d); sandstone footings (item 6e); salt glazed drainage pipes (item 6f); shaft/well (item 6g); water tank, combine box and fence line remains (item 6h); <i>in situ</i> wall (item 6i); borehole (item 6j); scatter of ceramic and glass (item 6k); fence line remains (item 6l).
7a to 7i	Ruins of Marali Homestead	House ruins (item 7a), a telegraph pole (item 7b); wooden bridge across Swamp Creek (item 7c); footbridge remains (item 7d); shed (item 7e); yards associated with shed (item 7f); yards in paddock (item 7g); water tank (item 7h); well, trough and yards (item 7h and 7i).
8a to 8c	Ruins of Hillview Homestead	House ruins (item 8a); sheds (items 8b and 8c).
9	Great Northern Road	Former road

**APPENDIX 8
INDEPENDENT DISPUTE RESOLUTION PROCESS**

